

SB-0008.ST25.txt  
SEQUENCE LISTING

<110> Finlay, Brett  
Gruenheid, Samantha  
Deng, Wanyin  
Vallance, Bruce  
Puente, Jose L.

<120> BACTERIAL VIRULENCE FACTORS AND USES THEREOF

<130> S&B-0008

<150> PCT/CA2004/001891

<151> 2004-10-29

<150> US 60/515,703

<151> 2003-10-31

<160> 84

<170> PatentIn version 3.3

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<212> DNA

<213> *Citrobacter rodentium*

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<213> Enterohemorrhagic E. coli

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 <213> *Citrobacter rodentium*

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 <213> *Enteropathogenic E. coli*

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<210> 7  
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 <212> DNA  
 <213> Enterohemorrhagic E. coli

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<210> 8  
 <211> 993  
 <212> DNA  
 <213> Citrobacter rodentium

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 <212> DNA  
 <213> *Citrobacter rodentium*

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<210> 13  
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 <213> Enterohemorrhagic E. coli

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<210> 14  
 <211> 506  
 <212> DNA  
 <213> Citrobacter rodentium

<400> 14  
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 gtagctgaac taaaacagga aggatttatt aacgagaaag ccaggcgact tgcttatatg 120  
 caagcaatgt attctgtatg tccggaagag tttaaacctt tttccagaaa cgaagctagt 180



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acaccggaag gcagctggct aacagttata tccggaaaac gcccaatggg acagttttct	240
gtagatagct tatatcatcc tgacttacat gcattgtgtg agcttccgga ttttgttgc	300
aagatcttcc ctaaagaaaa caatgatttt ttgtatatag tgattgtgta cagaaatgac	360
agccctctgg gagaacaacg agcaaatcga tttatagaat tatataatat aaaaagagac	420
atcatgcagg aattaaatta tgaatctcca gagttaaagg ctgtgaaatc tgaaatgatt	480
attgcacgtg aaatgggaga aatctt	506

<210> 15  
 <211> 466  
 <212> DNA  
 <213> Citrobacter rodentium

<400> 15 caatgtatat gataagaagt atatatctgg cgtaactaga ggagtagctg aactaaaaca	60
ggaaggattt attaacgaga aagccaggcg acttgcttat atgcaagcaa tgtattctgt	120
atgtccggaa gagtttaaac ctatttccag aaacgaagct agtacaccgg aaggcagctg	180
gctaacagtt atatccggaa aacgccaat gggacagttt tctgtagata gcttatatca	240
tcctgactta catgcattgt gtgagcttcc ggatatttgt tgcaagatct tccctaaaga	300
aaacaatgat tttttgtata tagtgattgt gtacagaaat gacagccctc tgggagaaca	360
acgagcaaat cgatttatag aattatataa tataaaaaga gacatcatgc aggaattaaa	420
ttatgaatct ccagagttaa aggctgtgaa atctgaaatg attatt	466

<210> 16  
 <211> 675  
 <212> DNA  
 <213> Enteropathogenic E. coli

<400> 16 atgattaatc ctgttactaa tactcagggc gtgtccccta taaatactaa atatgctgaa	60
catgtggtga aaaatattta cccgaaaatt aaacatgatt actttaatga atcacccaat	120
atatatgata agaagtatat atccggtata accagaggag tagctgaact aaaacaggaa	180
gaatttgta acgagaaagc cagacggttt tcttatatga agactatgta ttctgtatgt	240
ccagaagcgt ttgaacctat ttccagaaat gaagccagta caccggaagg aagctggcta	300
acagttatat ccggaaaacg cccaatgggg cagttttctg tagatagttt atacaatcct	360
gatttacatg cattatgtga gcttccggac atttgttgta agatcttccc taaagaaaat	420
aatgattttt tatacatagt tgttggtgtac agaaatgaca gccctctagg agaacaacgg	480
gcaaatagat ttatagaatt atataatata aaaagagata tcatgcagga attaaattat	540
gagttaccag agttaaggc agtaaaatct gaaatgatta tcgcacgtga aatgggagaa	600
atcttttagct acatgcctgg ggaaatagac agttatatga aatacataaa taataaactt	660
tctaaaattg agtag	675

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<210> 17  
 <211> 675  
 <212> DNA  
 <213> Enterohemorrhagic E. coli

<400> 17  
 atgattaatc ctgttactaa tactcagggc gtgtccccta taaatactaa atatgctgaa 60  
 catgtggtga aaaatattta cccggaaatt aaacatgatt actttaatga atcacccaat 120  
 atatatgata agaagtatat atccggtata accagaggag tagctgaact aaaacaggaa 180  
 gaatttggtta acgagaaagc cagacggttt tcttatatga agactatgta ttctgtatgt 240  
 ccagaagcgt ttgaacctat ttccagaaat gaagccagta caccggaagg aagctggcta 300  
 acagttatat ccggaaaacg cccaatgggg cagttttctg tagatagttt atacaatcct 360  
 gatttacatg cattatgtga gcttccggac atttgttgta agatcttccc taaagaaaat 420  
 aatgattttt tatacatagt tgttgtgtac agaaatgaca gccctctagg agaacaacgg 480  
 gcaaatagat ttatagaatt atataatata aaaagagata tcatgcagga attaaattat 540  
 gagttaccag agttaaaggc agtaaaatct gaaatgatta tcgcacgtga aatgggagaa 600  
 atctttagct acatgcctgg ggaaatagac agttatatga aatacataaa taataaactt 660  
 tctaaaattg agtag 675

<210> 18  
 <211> 570  
 <212> DNA  
 <213> Citrobacter rodentium

<400> 18  
 atgttaccaa caagtgggtc ttcagcaaatt ctttactcat ggatgtatat ctcaggaaaa 60  
 gagaatcctt cgactccgga atcagtaagt gaacttaatc ataatcattt tctttctcct 120  
 gaattacagg agaaactgga tgttatgttc gccatatatt catgtgccag aaacaatgat 180  
 gagcgtgaga atattttacc ggagctaagg gattttgtaa gtagcctaatt ggataagaga 240  
 aacaatgtgt ttgaggtgat aaatgaagat actgatgagg tgaccggagc tctgagagcg 300  
 ggaatgacga tagaggacag ggatagttat atcagggatc ttttttttct gcattcattg 360  
 aaagtaaaaa ttgaggaaag cagacaagat aaagaggatt ggaaatgtaa agtttatgat 420  
 ctgctatgtc cgcatcattc ttcagagcta tatggggatc tacgggcaat caaatgcctc 480  
 gttgaaggat gcagtgatga ttttagtcct tttgatacta ttaaggtgcc ggatccttact 540  
 tacaacaaag gatctttaca atgtggatga 570

<210> 19  
 <211> 519  
 <212> DNA  
 <213> Citrobacter rodentium

<400> 19  
 agcaaatctt tactcatgga tgtatatctc aggaaaagag aatccttcga ctccggaatc 60  
 agtaagtga cttaatcata atcattttct ttctcctgaa ttacaggaga aactggatgt 120

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tatgttcgcc	atatattcat	gtgccagaaa	caatgatgag	cgtgagaata	tttaccgcga	180
gctaagggat	tttgtaagta	gcctaattgga	taagagaaac	aatgtgtttg	aggtgataaa	240
tgaagatact	gatgaggtga	ccggagctct	gagagcggga	atgacgatag	aggacagggga	300
tagttatatc	agggatcttt	tttttctgca	ttcattgaaa	gtaaaaattg	aggaaagcag	360
acaagataaa	gaggattgga	aatgtaaagt	ttatgatctg	ctatgtccgc	atcattcttc	420
agagctatat	ggggatctac	gggcaatcaa	atgcctcggt	gaaggatgca	gtgatgattt	480
tagtcctttt	gatactatta	aggtgccgga	tcttactta			519

&lt;210&gt; 20

&lt;211&gt; 570

&lt;212&gt; DNA

&lt;213&gt; Enteropathogenic E. coli

&lt;400&gt; 20

atgtttacca	caagtgggtc	ttcagcaa	atctttattcat	ggatgtatgt	atcaggaaga	60
ggtaaccctt	cgactccgga	atcagtaagt	gagcttaatc	ataatcactt	tctttctcct	120
gaattacaag	ataaacttga	tgttatggtc	tctatatatt	catgtgccag	aaataataat	180
gagcttgagg	aaatTTTTca	agagctaagt	gcttttgtaa	gtgggctgat	ggataagaga	240
aatagtgtat	ttgaggtgag	aatgaaaat	actgatgagg	ttgtcggagc	gctgagggcg	300
ggaatgacga	tagaggatag	ggatagttat	atcagggatc	ttttttttct	gcattcattg	360
aaagtaaaaa	ttgaggaaag	tagacaaggc	aaagaagatt	cgaaatgtaa	agtttataat	420
ctgctatgtc	cgcatcactc	ttcagagcta	tatggtgatc	tacgagcaat	gaaatgcctc	480
gtggaaggat	gcagtgatga	ttttaatcct	tttgatatta	ttagggtagc	agatcttact	540
tacaacaaag	gatctttaca	atgtggatga				570

&lt;210&gt; 21

&lt;211&gt; 570

&lt;212&gt; DNA

&lt;213&gt; Enterohemorrhagic E. coli

&lt;400&gt; 21

atgtttacca	caagtgggtc	ttcagcaa	atctttattcat	ggatgtatgt	atcaggaaga	60
ggtaaccctt	cgactccgga	atcagtaagt	gagcttaatc	ataatcactt	tctttctcct	120
gaattacaag	ataaacttga	tgttatggtc	tctatatatt	catgtgccag	aaataataat	180
gagcttgagg	aaatTTTTca	agagctaagt	gcttttgtaa	gtgggctgat	ggataagaga	240
aatagtgtat	ttgaggtgag	aatgaaaat	actgatgagg	ttgtcggagc	gctgagggcg	300
ggaatgacga	tagaggacag	ggatagttat	atcagggatc	ttttttttct	gcattcattg	360
aaagtaaaaa	ttgaggaaag	tagacaaggc	aaagaagatt	cgaaatgtaa	agtttataat	420
ctgctatgtc	cgcatcactc	ttcagagcta	tatggtgatc	tacgagcaat	gaaatgcctc	480
gtggaaggat	gcagtgatga	ttttaatcct	tttgatatta	ttagggtagc	agatcttact	540
tacaacaaag	gatctttaca	atgtggatga				570

<210> 22  
 <211> 430  
 <212> PRT  
 <213> *Citrobacter rodentium*  
 <400> 22

Met Asn Ile Gln Pro Asn Ile His Ser Gly Ile Thr Thr Gln Asn Asn  
 1 5 10 15

Gln Gln His His His Ala Glu Gln Val Pro Val Ser Ser Ser Ile Pro  
 20 25 30

Arg Ser Asp Leu Pro Pro Asn Cys Glu Ala Gly Phe Val Val His Ile  
 35 40 45

Pro Glu Asp Ile Gln Gln His Val Pro Glu Cys Gly Glu Thr Thr Ala  
 50 55 60

Leu Leu Ser Leu Ile Lys Asp Glu Gly Leu Leu Ser Gly Leu Asp Lys  
 65 70 75 80

Tyr Leu Ala Pro His Leu Glu Glu Gly Ser Leu Gly Lys Lys Ala Leu  
 85 90 95

Asp Thr Phe Gly Leu Phe Asn Val Thr Gln Met Ala Leu Glu Ile Pro  
 100 105 110

Ser Ser Val Pro Gly Ile Ser Gly Lys Tyr Gly Val Gln Met Asn Ile  
 115 120 125

Val Lys Pro Asp Ile His Pro Thr Thr Gly Asn Tyr Phe Leu Gln Leu  
 130 135 140

Phe Pro Leu His Asp Glu Ile Gly Phe Asn Phe Lys Asp Leu Pro Gly  
 145 150 155 160

Pro Leu Lys Asn Ala Leu Thr Asn Ser Ser Ile Ser Ala Thr Ala Ser  
 165 170 175

Thr Val Ala Pro Thr Pro Asn Asp Pro Met Pro Trp Phe Gly Leu Thr  
 180 185 190

Ala Gln Val Val Arg Asn His Gly Val Glu Leu Pro Ile Val Lys Thr  
 195 200 205

Glu Asn Gly Trp Lys Leu Val Gly Glu Thr Pro Leu Thr Pro Asp Gly  
 210 215 220

Pro Lys Ala Asn Tyr Thr Glu Glu Trp Val Ile Arg Pro Gly Glu Ala  
 225 230 235 240

Asp Phe Lys Tyr Gly Thr Ser Pro Leu Gln Ala Thr Leu Gly Leu Glu  
 245 250 255

Phe Gly Ala His Phe Lys Trp Asp Leu Asp Asn Pro Asn Thr Lys Tyr  
 260 265 270

Ala Ile Leu Thr Asn Ala Ala Ala Asn Ala Ile Gly Ala Ala Gly Gly  
 275 280 285

Phe Ala Val Ser Lys Val Pro Gly Ile Asp Pro Met Leu Ser Pro His  
 290 295 300

Val Gly Ala Met Leu Gly Gln Ala Ala Gly His Ala Val Gln Cys Asn  
 305 310 315 320

Thr Pro Gly Leu Lys Pro Asp Thr Ile Leu Trp Trp Ala Gly Ala Thr  
 325 330 335

Phe Gly Ala Ala Asp Leu Asn Lys Ala Glu Phe Asp Lys Val Arg Phe  
 340 345 350

Thr Asp Tyr Pro Arg Ile Trp Phe His Ala Arg Glu Gly Ala Leu Phe  
 355 360 365

Pro Asn Lys Gln Asp Ile Ala Arg Val Thr Gly Ala Asp Ile Lys Ala  
 370 375 380

Met Glu Glu Gly Val Pro Val Gly His Gln His Pro Lys Pro Glu Asp  
 385 390 395 400

Val Val Ile Asp Ile Glu Gly Gly Asn Ser Pro His His Asn Pro Ser  
 405 410 415

Asn Tyr Val Asp Thr Phe Glu Ile Ile Gln Glu Thr Arg Val  
 420 425 430

<210> 23

<211> 440

<212> PRT

<213> Enteropathogenic E. coli

<400> 23

Met Asn Ile Gln Pro Ile Val Thr Ser Gly Ile Thr Thr Gln Asn Asn  
 1 5 10 15

Arg His His His Ala Glu Gln Thr Ser Pro Thr Gln Ile Pro Gln Ser  
 20 25 30

Glu Leu Pro Asn Gly Cys Glu Thr Gly Phe Val Val His Ile Pro Glu  
 35 40 45

Asp Met Gln Arg His Ala Pro Glu Cys Gly Glu Thr Thr Ala Leu Leu  
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Ser Leu Ile Lys Asp Glu Gly Leu Leu Ser Gly Leu Asp Lys Tyr Leu  
65 70 75 80

Ala Pro His Leu Glu Glu Gly Ser Ala Gly Lys Lys Ala Leu Asp Met  
85 90 95

Phe Gly Leu Phe Asn Val Ser Gln Met Ala Leu Glu Ile Pro Ser Thr  
100 105 110

Val Pro Gly Ile Ser Gly Lys Tyr Gly Val Gln Leu Asn Ile Val Lys  
115 120 125

Pro Asp Ile His Pro Thr Ser Gly Asn Tyr Phe Leu Gln Ile Phe Pro  
130 135 140

Leu His Asp Glu Ile Gly Ile Asn Phe Lys Asp Leu Pro Gly Pro Leu  
145 150 155 160

Lys Asn Ala Leu Ser Asn Ser Asn Ile Pro Thr Thr Val Ser Thr Ala  
165 170 175

Ala Ser Thr Ile Ala Ser Ala Thr Thr Ser Thr Val Thr Thr Ala Ser  
180 185 190

Lys Asp Pro Ile Pro Trp Phe Gly Leu Thr Ala Gln Val Val Arg Asn  
195 200 205

His Gly Val Glu Leu Pro Ile Val Lys Thr Glu Asn Gly Trp Lys Leu  
210 215 220

Val Gly Glu Thr Pro Leu Thr Pro Asp Gly Pro Lys Ala Asn Tyr Thr  
225 230 235 240

Glu Glu Trp Val Ile Arg Pro Gly Glu Ala Asp Phe Lys Tyr Gly Ala  
245 250 255

Ser Pro Leu Gln Ala Thr Leu Gly Leu Glu Phe Gly Ala His Phe Lys  
260 265 270

Trp Asp Leu Asp Asn Pro Asn Thr Lys Tyr Ala Val Leu Thr Asn Ala  
275 280 285

Ala Ala Asn Ala Leu Gly Ala Val Gly Gly Phe Ala Val Ser Arg Phe  
290 295 300

Thr Gly Thr Asp Pro Met Leu Ser Pro His Ile Gly Ala Met Val Gly  
305 310 315 320

Gln Ala Ala Gly His Ala Ile Gln Tyr Asn Thr Pro Gly Leu Lys Pro  
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335

Asp Thr Ile Leu Trp Trp Ala Gly Thr Thr Leu Gly Leu Ala Asp Leu  
340 345 350

Asn Lys Ala Glu Phe Gly Glu Ala Arg Phe Thr Asp Tyr Pro Arg Ile  
355 360 365

Trp Trp His Ala Arg Glu Gly Ala Ile Phe Pro Asn Lys Ala Asp Ile  
370 375 380

Glu His Ala Thr Gly Ala Asp Ile Arg Ala Met Glu Glu Gly Val Ser  
385 390 395 400

Val Gly Gln Arg His Pro Asn Pro Glu Asp Val Val Ile Asn Ile Glu  
405 410 415

Ser Asn Asn Ser Pro His His Asn Pro Ser Asn Tyr Val Asp Thr Val  
420 425 430

Asp Ile Ile Gln Glu Thr Arg Val  
435 440

<210> 24  
<211> 441  
<212> PRT  
<213> Enterohemorrhagic E. coli

<400> 24

Met Asn Ile Gln Pro Thr Ile Gln Ser Gly Ile Thr Ser Gln Asn Asn  
1 5 10 15

Gln His His Gln Thr Glu Gln Ile Pro Ser Thr Gln Ile Pro Gln Ser  
20 25 30

Glu Leu Pro Leu Gly Cys Gln Ala Gly Phe Val Val Asn Ile Pro Asp  
35 40 45

Asp Ile Gln Gln His Ala Pro Glu Cys Gly Glu Thr Thr Ala Leu Leu  
50 55 60

Ser Leu Ile Lys Asp Lys Gly Leu Leu Ser Gly Leu Asp Glu Tyr Ile  
65 70 75 80

Ala Pro His Leu Glu Glu Gly Ser Ile Gly Lys Lys Thr Leu Asp Met  
85 90 95

Phe Gly Leu Phe Asn Val Thr Gln Met Ala Leu Glu Ile Pro Ser Ser  
100 105 110

Val Ser Gly Ile Ser Gly Lys Tyr Gly Val Gln Leu Asn Ile Val Lys  
115 120 125

Pro Asp Ile His Pro Thr Ser Gly Asn Tyr Phe Leu Gln Ile Phe Pro  
 130 135 140  
 Leu His Asp Glu Ile Gly Phe Asn Phe Lys Asp Leu Pro Gly Pro Leu  
 145 150 155 160  
 Lys Asn Ala Leu Ser Asn Ser Asn Ile Ser Thr Thr Ala Val Ser Thr  
 165 170 175  
 Ile Ala Ser Thr Gly Thr Ser Ala Thr Thr Ser Thr Val Thr Thr Glu  
 180 185 190  
 Pro Lys Asp Pro Ile Pro Trp Phe Gly Leu Thr Ala Gln Val Val Arg  
 195 200 205  
 Asn His Gly Val Glu Leu Pro Ile Val Lys Thr Glu Asn Gly Trp Lys  
 210 215 220  
 Leu Val Gly Glu Thr Pro Leu Thr Pro Asp Gly Pro Lys Ala Asn Tyr  
 225 230 235 240  
 Thr Glu Glu Trp Val Ile Arg Pro Gly Glu Ala Asp Phe Lys Tyr Gly  
 245 250 255  
 Ala Ser Pro Leu Gln Ala Thr Leu Gly Leu Glu Phe Gly Ala His Phe  
 260 265 270  
 Lys Trp Asp Leu Asp Asn Pro Asn Thr Lys Tyr Ala Val Leu Thr Asn  
 275 280 285  
 Ala Ala Ala Asn Ala Leu Gly Ala Leu Gly Gly Phe Ala Val Ser Arg  
 290 295 300  
 Phe Ala Ser Thr Asp Pro Met Leu Ser Pro His Ile Gly Ala Met Val  
 305 310 315 320  
 Gly Gln Ala Ala Gly His Ala Ile Gln Tyr Asn Thr Pro Gly Leu Lys  
 325 330 335  
 Pro Asp Thr Ile Leu Trp Trp Ala Gly Ala Thr Leu Gly Ala Ala Asp  
 340 345 350  
 Leu Asn Lys Ala Glu Phe Glu Val Ala Arg Phe Thr Asp Tyr Pro Arg  
 355 360 365  
 Ile Trp Trp His Ala Arg Glu Gly Ala Ile Phe Pro Asn Lys Ala Asp  
 370 375 380  
 Ile Glu His Ala Thr Gly Ala Asp Ile Arg Ala Met Glu Glu Gly Ile  
 385 390 395 400



Pro Val Gly Gln Arg His Pro Asn Pro Glu Asp Val Val Ile Asp Ile  
405 410 415

Glu Ser Asn Gly Leu Pro His His Asn Pro Ser Asn His Val Asp Ile  
420 425 430

Phe Asp Ile Ile Gln Glu Thr Arg Val  
435 440

<210> 25  
<211> 204  
<212> PRT  
<213> Citrobacter rodentium

<400> 25

Ile Leu Phe Gln Trp Phe Glu Ala Arg Pro Glu Arg Tyr Gly Lys Gly  
1 5 10 15

Glu Val Pro Ile Leu Asn Thr Lys Glu His Pro Tyr Leu Ser Asn Ile  
20 25 30

Ile Asn Ala Ala Lys Ile Glu Asn Glu Arg Val Ile Gly Val Leu Val  
35 40 45

Asp Gly Asp Phe Thr Tyr Glu Gln Arg Lys Glu Phe Leu Ser Leu Glu  
50 55 60

Asp Glu His Gln Asn Ile Lys Ile Ile Tyr Arg Glu Asn Val Asp Phe  
65 70 75 80

Ser Met Tyr Asp Lys Lys Leu Ser Asp Ile Tyr Leu Glu Asn Ile His  
85 90 95

Glu Gln Glu Ser Tyr Pro Ala Ser Glu Arg Asp Asn Tyr Leu Leu Gly  
100 105 110

Leu Leu Arg Glu Glu Leu Lys Asn Ile Pro Tyr Gly Lys Asp Ser Leu  
115 120 125

Ile Glu Ser Tyr Ala Glu Lys Arg Gly His Thr Trp Phe Asp Phe Phe  
130 135 140

Arg Asn Leu Ala Val Leu Lys Gly Gly Gly Leu Phe Thr Glu Thr Gly  
145 150 155 160

Lys Thr Gly Cys His Asn Ile Ser Pro Cys Gly Gly Cys Ile Tyr Leu  
165 170 175

Asp Ala Asp Met Ile Ile Thr Asp Lys Leu Gly Val Leu Tyr Ala Pro  
180 185 190

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Asp Gly Ile Ala Val His Val Asp Cys Asn Asp Glu  
195 200

<210> 26  
<211> 186  
<212> PRT  
<213> *Citrobacter rodentium*

<400> 26

Arg Pro Glu Arg Tyr Gly Lys Gly Glu Val Pro Ile Leu Asn Thr Lys  
1 5 10 15

Glu His Pro Tyr Leu Ser Asn Ile Ile Asn Ala Ala Lys Ile Glu Asn  
20 25 30

Glu Arg Val Ile Gly Val Leu Val Asp Gly Asp Phe Thr Tyr Glu Gln  
35 40 45

Arg Lys Glu Phe Leu Ser Leu Glu Asp Glu His Gln Asn Ile Lys Ile  
50 55 60

Ile Tyr Arg Glu Asn Val Asp Phe Ser Met Tyr Asp Lys Lys Leu Ser  
65 70 75 80

Asp Ile Tyr Leu Glu Asn Ile His Glu Gln Glu Ser Tyr Pro Ala Ser  
85 90 95

Glu Arg Asp Asn Tyr Leu Leu Gly Leu Leu Arg Glu Glu Leu Lys Asn  
100 105 110

Ile Pro Tyr Gly Lys Asp Ser Leu Ile Glu Ser Tyr Ala Glu Lys Arg  
115 120 125

Gly His Thr Trp Phe Asp Phe Phe Arg Asn Leu Ala Val Leu Lys Gly  
130 135 140

Gly Gly Leu Phe Thr Glu Thr Gly Lys Thr Gly Cys His Asn Ile Ser  
145 150 155 160

Pro Cys Gly Gly Cys Ile Tyr Leu Asp Ala Asp Met Ile Ile Thr Asp  
165 170 175

Lys Leu Gly Val Leu Tyr Ala Pro Asp Gly  
180 185

<210> 27  
<211> 329  
<212> PRT  
<213> *Enteropathogenic E. coli*

<400> 27

Met Leu Ser Ser Leu Asn Val Leu Gln Ser Ser Phe Arg Gly Lys Thr  
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1

5

10

15

Ala Leu Ser Asn Ser Thr Leu Leu Gln Lys Val Ser Phe Ala Gly Lys  
20 25 30

Glu Tyr Ser Leu Glu Pro Ile Asp Glu Arg Thr Pro Ile Leu Phe Gln  
35 40 45

Trp Phe Glu Ala Arg Pro Glu Arg Tyr Glu Lys Gly Glu Val Pro Ile  
50 55 60

Leu Asn Thr Lys Glu His Pro Tyr Leu Ser Asn Ile Ile Asn Ala Ala  
65 70 75 80

Lys Ile Glu Asn Glu Arg Ile Ile Gly Val Leu Val Asp Gly Asn Phe  
85 90 95

Thr Tyr Glu Gln Lys Lys Glu Phe Leu Asn Leu Glu Asn Glu His Gln  
100 105 110

Asn Ile Lys Ile Ile Tyr Arg Ala Asp Val Asp Phe Ser Met Tyr Asp  
115 120 125

Lys Lys Leu Ser Asp Ile Tyr Leu Glu Asn Ile His Lys Gln Glu Ser  
130 135 140

Tyr Pro Ala Ser Glu Arg Asp Asn Tyr Leu Leu Gly Leu Leu Arg Glu  
145 150 155 160

Glu Leu Lys Asn Ile Pro Glu Gly Lys Asp Ser Leu Ile Glu Ser Tyr  
165 170 175

Ala Glu Lys Arg Glu His Thr Trp Phe Asp Phe Phe Arg Asn Leu Ala  
180 185 190

Ile Leu Lys Ala Gly Ser Leu Phe Thr Glu Thr Gly Lys Thr Gly Cys  
195 200 205

His Asn Ile Ser Pro Cys Ser Gly Cys Ile Tyr Leu Asp Ala Asp Met  
210 215 220

Ile Ile Thr Asp Lys Leu Gly Val Leu Tyr Ala Pro Asp Gly Ile Ala  
225 230 235 240

Val His Val Asp Cys Asn Asp Glu Ile Lys Ser Leu Glu Asn Gly Ala  
245 250 255

Ile Val Val Asn Arg Ser Asn His Pro Ala Leu Leu Ala Gly Leu Asp  
260 265 270

Ile Met Lys Ser Lys Val Asp Ala His Pro Tyr Tyr Asp Gly Leu Gly  
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285

Lys Gly Ile Lys Arg His Phe Asn Tyr Ser Ser Leu His Asn Tyr Asn  
 290 295 300

Ala Phe Cys Asp Phe Ile Glu Phe Lys His Glu Asn Ile Ile Pro Asn  
 305 310 315 320

Thr Ser Met Tyr Thr Ser Ser Ser Trp  
 325

<210> 28

<211> 329

<212> PRT

<213> Enterohemorrhagic E. coli

<400> 28

Met Leu Ser Ser Leu Asn Val Leu Gln Ser Ser Phe Arg Gly Lys Thr  
 1 5 10 15

Ala Leu Ser Asn Ser Thr Leu Leu Gln Lys Val Ser Phe Ala Gly Lys  
 20 25 30

Glu Tyr Pro Leu Glu Pro Ile Asp Glu Lys Thr Pro Ile Leu Phe Gln  
 35 40 45

Trp Phe Glu Ala Arg Pro Glu Arg Tyr Glu Lys Gly Glu Val Pro Ile  
 50 55 60

Leu Asn Thr Lys Glu His Pro Tyr Leu Ser Asn Ile Ile Asn Ala Ala  
 65 70 75 80

Lys Ile Glu Asn Glu Arg Ile Ile Gly Val Leu Val Asp Gly Asn Phe  
 85 90 95

Thr Tyr Glu Gln Lys Lys Glu Phe Leu Ser Leu Glu Asn Glu Tyr Gln  
 100 105 110

Asn Ile Lys Ile Ile Tyr Arg Ala Asp Val Asp Phe Ser Met Tyr Asp  
 115 120 125

Lys Lys Leu Ser Asp Ile Tyr Leu Glu Asn Ile His Lys Gln Glu Ser  
 130 135 140

Tyr Pro Ala Ser Glu Arg Asp Asn Tyr Leu Leu Gly Leu Leu Arg Glu  
 145 150 155 160

Glu Leu Lys Asn Ile Pro Glu Gly Lys Asp Ser Leu Ile Glu Ser Tyr  
 165 170 175

Ala Glu Lys Arg Glu His Thr Trp Phe Asp Phe Phe Arg Asn Leu Ala  
 180 185 190

Met Leu Lys Ala Gly Ser Leu Phe Thr Glu Thr Gly Lys Thr Gly Cys  
195 200 205

His Asn Ile Ser Pro Cys Ser Gly Cys Ile Tyr Leu Asp Ala Asp Met  
210 215 220

Ile Ile Thr Asp Lys Leu Gly Val Leu Tyr Ala Pro Asp Gly Ile Ala  
225 230 235 240

Val His Val Asp Cys Asn Asp Glu Ile Lys Ser Leu Glu Asn Gly Ala  
245 250 255

Ile Val Val Asn Arg Ser Asn His Pro Ala Leu Leu Ala Gly Leu Asp  
260 265 270

Ile Met Lys Ser Lys Val Asp Ala His Pro Tyr Tyr Asp Gly Leu Gly  
275 280 285

Lys Gly Ile Lys Arg His Phe Asn Tyr Ser Ser Leu His Asp Tyr Asn  
290 295 300

Ala Phe Cys Asp Phe Ile Glu Phe Lys His Glu Asn Ile Ile Pro Asn  
305 310 315 320

Thr Ser Met Tyr Thr Cys Ser Ser Trp  
325

<210> 29  
<211> 326  
<212> PRT  
<213> Enterohemorrhagic E. coli  
<400> 29

Met Leu Ser Pro Ile Arg Thr Thr Phe His Asn Ser Val Asn Ile Val  
1 5 10 15

Gln Ser Ser Pro Cys Gln Thr Val Ser Phe Ala Gly Lys Glu Tyr Glu  
20 25 30

Leu Lys Val Ile Asp Glu Lys Thr Pro Ile Leu Phe Gln Trp Phe Glu  
35 40 45

Pro Asn Pro Glu Arg Tyr Lys Lys Asp Glu Val Pro Ile Val Asn Thr  
50 55 60

Lys Gln His Pro Tyr Leu Asp Asn Val Thr Asn Ala Ala Arg Ile Glu  
65 70 75 80

Ser Asp Arg Met Ile Gly Ile Phe Val Asp Gly Asp Phe Ser Val Asn  
85 90 95

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Gln Lys Thr Ala Phe Ser Lys Leu Glu Arg Asp Phe Glu Asn Val Met  
100 105 110

Ile Ile Tyr Arg Glu Asp Val Asp Phe Ser Met Tyr Asp Arg Lys Leu  
115 120 125

Ser Asp Ile Tyr His Asp Ile Ile Cys Glu Gln Arg Leu Arg Thr Glu  
130 135 140

Asp Lys Arg Asp Glu Tyr Leu Leu Asn Leu Leu Glu Lys Glu Leu Arg  
145 150 155 160

Glu Ile Ser Lys Ala Gln Asp Ser Leu Ile Ser Met Tyr Ala Lys Lys  
165 170 175

Arg Asn His Ala Trp Phe Asp Phe Phe Arg Asn Leu Ala Leu Leu Lys  
180 185 190

Ala Gly Glu Ile Phe Arg Cys Thr Tyr Asn Thr Lys Asn His Gly Ile  
195 200 205

Ser Phe Gly Glu Gly Cys Ile Tyr Leu Asp Met Asp Met Ile Leu Thr  
210 215 220

Gly Lys Leu Gly Thr Ile Tyr Ala Pro Asp Gly Ile Ser Met His Val  
225 230 235 240

Asp Arg Arg Asn Asp Ser Val Asn Ile Glu Asn Ser Ala Ile Ile Val  
245 250 255

Asn Arg Ser Asn His Pro Ala Leu Leu Glu Gly Leu Ser Phe Met His  
260 265 270

Ser Lys Val Asp Ala His Pro Tyr Tyr Asp Gly Leu Gly Lys Gly Val  
275 280 285

Lys Lys Tyr Phe Asn Phe Thr Pro Leu His Asn Tyr Asn His Phe Cys  
290 295 300

Asp Phe Ile Glu Phe Asn His Pro Asn Ile Ile Met Asn Thr Ser Gln  
305 310 315 320

Tyr Thr Cys Ser Ser Trp  
325

<210> 30  
<211> 330  
<212> PRT  
<213> Citrobacter rodentium  
<400> 30

Met Lys Ile Pro Ser Leu Gln Pro Ser Phe Asn Phe Phe Ala Pro Ala  
 1 5 10 15  
 Gly Tyr Ser Ala Ala Val Ala Pro Asn Arg Ser Asp Asn Ala Tyr Ala  
 20 25 30  
 Asp Tyr Val Leu Asp Ile Gly Lys Arg Ile Pro Leu Ser Ala Glu Asp  
 35 40 45  
 Leu Gly Asn Leu Tyr Glu Asn Val Ile Arg Ala Val Arg Asp Ser Arg  
 50 55 60  
 Ser Lys Leu Ile Asp Gln His Thr Val Asp Met Ile Gly Asn Thr Ile  
 65 70 75 80  
 Leu Asp Ala Leu Ser Arg Ser Gln Thr Phe Arg Asp Ala Val Ser Tyr  
 85 90 95  
 Gly Ile His Asn Lys Glu Val His Ile Gly Cys Ile Lys Tyr Arg Asn  
 100 105 110  
 Glu Tyr Glu Leu Asn Gly Glu Ser Pro Val Lys Val Asp Asp Ile Gln  
 115 120 125  
 Ser Leu Thr Cys Thr Glu Leu Tyr Glu Tyr Asp Val Gly Gln Glu Pro  
 130 135 140  
 Ile Leu Pro Ile Cys Glu Ala Gly Glu Asn Asp Asn Glu Glu Pro Tyr  
 145 150 155 160  
 Val Ser Phe Ser Val Ala Pro Asp Thr Asp Ser Tyr Glu Met Pro Ser  
 165 170 175  
 Trp Gln Glu Gly Leu Ile His Glu Ile Ile His His Val Thr Gly Ala  
 180 185 190  
 Ser Asp Pro Ser Gly Asp Ser Asn Ile Glu Leu Gly Pro Thr Glu Ile  
 195 200 205  
 Leu Ala Arg Arg Val Ala Gln Glu Leu Gly Trp Thr Val Pro Asp Phe  
 210 215 220  
 Ile Gly Tyr Ala Glu Pro Asp Arg Glu Ala His Leu Arg Gly Arg Asn  
 225 230 235 240  
 Leu Asn Ala Leu Arg Gln Ala Ala Met Arg His Glu Asp Asn Glu Arg  
 245 250 255  
 Thr Phe Phe Glu Arg Leu Gly Met Ile Ser Asp Arg Tyr Glu Ala Ser  
 260 265 270

Pro Asp Phe Thr Glu Tyr Ser Ala Val Ser Asn Ile Glu Tyr Gly Phe  
 275 280 285

Ile Gln Gln His Asp Phe Pro Gly Leu Ala Ile Asp Asp Asn Leu Gln  
 290 295 300

Asp Ala Asn Gln Ile Gln Leu Tyr His Gly Ala Pro Tyr Ile Phe Thr  
 305 310 315 320

Phe Gly Asp Val Asp Lys His Asn Gln Arg  
 325 330

<210> 31  
 <211> 330  
 <212> PRT  
 <213> Enteropathogenic E. coli  
 <400> 31

Met Lys Ile Pro Ser Leu Gln Ser Asn Phe Asn Phe Ser Ala Pro Ala  
 1 5 10 15

Gly Tyr Ser Ala Pro Ile Ala Pro Asn Arg Ala Glu Asn Ala Tyr Ala  
 20 25 30

Asp Tyr Val Leu Asp Ile Gly Lys Arg Ile Pro Leu Ser Ala Ala Asp  
 35 40 45

Leu Ser Asn Val Tyr Glu Ser Val Ile Arg Ala Val His Asp Ser Arg  
 50 55 60

Ser Arg Leu Ile Asp Gln His Thr Val Asp Met Ile Gly Asn Thr Val  
 65 70 75 80

Leu Asp Ala Leu Ser Arg Ser Gln Thr Phe Arg Asp Ala Val Ser Tyr  
 85 90 95

Gly Ile His Asn Glu Lys Val His Ile Gly Cys Ile Lys Tyr Arg Asn  
 100 105 110

Glu Tyr Glu Leu Asn Glu Glu Ser Ser Val Lys Ile Asp Asp Ile Gln  
 115 120 125

Ser Leu Thr Cys Asn Glu Leu Tyr Glu Tyr Asp Val Gly Gln Glu Pro  
 130 135 140

Ile Phe Pro Ile Cys Glu Ala Gly Glu Asn Asp Asn Glu Glu Pro Tyr  
 145 150 155 160

Val Ser Phe Ser Val Ala Pro Asp Thr Asp Ser Tyr Glu Met Pro Ser  
 165 170 175

Trp Gln Glu Gly Leu Ile His Glu Ile Ile His His Val Thr Gly Ser  
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Ser Asp Pro Ser Gly Asp Ser Asn Ile Glu Leu Gly Pro Thr Glu Ile  
195 200 205

Leu Ala Arg Arg Val Ala Gln Glu Leu Gly Trp Ser Val Pro Asp Phe  
210 215 220

Lys Gly Tyr Ala Glu Pro Glu Arg Glu Ala His Leu Arg Leu Arg Asn  
225 230 235 240

Leu Asn Ala Leu Arg Gln Ala Ala Met Arg His Glu Glu Asn Glu Arg  
245 250 255

Ala Phe Phe Glu Arg Leu Gly Thr Ile Ser Asp Arg Tyr Glu Ala Ser  
260 265 270

Pro Asp Phe Thr Glu Tyr Ser Ala Val Ser Asn Ile Gly Tyr Gly Phe  
275 280 285

Ile Gln Gln His Asp Phe Pro Gly Leu Ala Ile Asn Asp Asn Leu Gln  
290 295 300

Asp Ala Asn Gln Ile Gln Leu Tyr His Gly Ala Pro Tyr Ile Phe Thr  
305 310 315 320

Phe Gly Asp Val Asp Lys His Asn Gln Arg  
325 330

<210> 32  
<211> 330  
<212> PRT  
<213> Enterohemorrhagic E. coli

<400> 32

Met Lys Ile Pro Ser Leu Gln Ser Asn Phe Asn Phe Ser Ala Pro Ala  
1 5 10 15

Gly Tyr Ser Ala Pro Ile Ala Pro Asn Arg Ala Glu Asn Ala Tyr Ala  
20 25 30

Asp Tyr Val Leu Asp Ile Gly Lys Arg Ile Pro Leu Ser Ala Ala Asp  
35 40 45

Leu Ser Asn Val Tyr Glu Ser Val Ile Arg Ala Val His Asp Ser Arg  
50 55 60

Ser Arg Leu Ile Asp Gln His Thr Val Asp Met Ile Gly Asn Thr Val  
65 70 75 80

Leu Asp Ala Leu Ser Arg Ser Gln Thr Phe Arg Asp Ala Val Ser Tyr  
85 90 95

Gly Ile His Asn Glu Lys Val His Ile Gly Cys Ile Lys Tyr Arg Asn  
100 105 110

Glu Tyr Glu Leu Asn Glu Glu Ser Ser Val Lys Ile Asp Asp Ile Gln  
115 120 125

Ser Leu Thr Cys Asn Glu Leu Tyr Glu Tyr Asp Val Gly Gln Glu Pro  
130 135 140

Ile Phe Pro Ile Cys Glu Ala Gly Glu Asn Asp Asn Glu Glu Pro Tyr  
145 150 155 160

Val Ser Phe Ser Val Ala Pro Asp Thr Asp Ser Tyr Glu Met Pro Ser  
165 170 175

Trp Gln Glu Gly Leu Ile His Glu Ile Ile His His Val Thr Gly Ser  
180 185 190

Ser Asp Pro Ser Gly Asp Ser Asn Ile Glu Leu Gly Pro Thr Glu Ile  
195 200 205

Leu Ala Arg Arg Val Ala Gln Glu Leu Gly Trp Ser Val Pro Asp Phe  
210 215 220

Lys Gly Tyr Ala Glu Pro Glu Arg Glu Ala His Leu Arg Leu Arg Asn  
225 230 235 240

Leu Asn Ala Leu Arg Gln Ala Ala Met Arg His Glu Glu Asn Glu Arg  
245 250 255

Ala Phe Phe Glu Arg Leu Gly Thr Ile Ser Asp Arg Tyr Glu Ala Ser  
260 265 270

Pro Asp Phe Thr Glu Tyr Ser Ala Val Ser Asn Ile Gly Tyr Gly Phe  
275 280 285

Ile Gln Gln His Asp Phe Pro Gly Leu Ala Ile Asn Asp Asn Leu Gln  
290 295 300

Asp Ala Asn Gln Ile Gln Leu Tyr His Gly Ala Pro Tyr Ile Phe Thr  
305 310 315 320

Phe Gly Asp Val Asp Lys His Asn Gln Gln  
325 330

<210> 33  
<211> 235  
<212> PRT  
<213> Citrobacter rodentium

<400> 33

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Met Arg Pro Thr Ser Leu Asn Leu Thr Leu Pro Ser Leu Pro Leu Pro  
1 5 10 15

Ser Ser Ser Asn Ser Ile Ser Ala Thr Asp Ile Gln Ser Leu Val Lys  
20 25 30

Met Ser Gly Val Arg Trp Val Lys Asn Asn Gln Gln Leu Cys Phe His  
35 40 45

Gly Thr Asp Leu Lys Ile Tyr Gln His Leu Glu Ala Ala Leu Asp Lys  
50 55 60

Ile Glu Ser Thr Asp Thr Gly Arg Thr Leu Leu Asn Cys Ile Glu Leu  
65 70 75 80

Thr Ser Arg Leu Lys Ser Glu Lys Leu Ala Ile His Leu Asp Ser Ala  
85 90 95

Glu Leu Gly Val Ile Ala His Cys Asn Ala Asp Ala Glu Asn Ser Arg  
100 105 110

Gly Thr Gly Ser Asp Phe His Cys Asn Leu Asn Ala Val Glu Tyr Pro  
115 120 125

Cys Gly Gln Gly Ile Ser Leu Val Asp Phe His Ala Cys Ile Val Phe  
130 135 140

His Glu Leu Leu His Val Phe His Asn Leu Asn Gly Glu Arg Leu Lys  
145 150 155 160

Val Glu Ser Ser Gln Pro Glu Leu Gln Thr His Ser Pro Leu Leu Leu  
165 170 175

Glu Glu Ala Arg Thr Val Gly Leu Gly Ala Phe Ser Glu Glu Val Leu  
180 185 190

Ser Glu Asn Lys Phe Arg Glu Glu Ile Gly Met Pro Arg Arg Thr Phe  
195 200 205

Tyr Pro His Asp Ser Ser Leu Ile His Asp Asp Asn Thr Val Thr Gln  
210 215 220

Arg Phe Gln Arg Lys Lys Leu His Pro Leu Leu  
225 230 235

<210> 34

<211> 232

<212> PRT

<213> Enteropathogenic E. coli

<400> 34

SB-0008.ST25.txt

Met Arg Pro Thr Ser Leu Asn Leu Val Leu His Gln Ser Ser Thr Ser  
1 5 10 15

Ser Ser Met Ser Asp Thr Asp Ile Glu Ser Leu Val Lys Ala Ser Ser  
20 25 30

Val Gln Trp Ile Lys Asn Asn Pro Gln Leu Arg Phe Gln Gly Thr Asp  
35 40 45

His Asn Ile Tyr Gln Gln Ile Glu Ala Ala Leu Asp Lys Ile Gly Ser  
50 55 60

Thr Glu Thr Gly Arg Val Leu Leu Asn Ala Ile Glu Ser Ile Ser Arg  
65 70 75 80

Leu Lys Ser Glu Thr Val Val Ile His Leu Asn Ser Ser Arg Leu Gly  
85 90 95

Val Met Ala His Arg Asp Ile Asp Ala Glu Asn His Arg Gly Thr Gly  
100 105 110

Ser Asp Phe His Cys Asn Leu Asn Ala Val Glu Tyr Pro Cys Gly Glu  
115 120 125

Gly Ile Ser Val Val Asp Phe His Ala Thr Ile Val Phe His Glu Leu  
130 135 140

Leu His Val Phe His Asn Leu Asn Gly Glu Arg Leu Lys Val Glu Ser  
145 150 155 160

Ser Arg Pro Glu Ser Gln Lys Tyr Ser Pro Leu Leu Leu Glu Glu Ala  
165 170 175

Arg Thr Val Gly Leu Gly Ala Phe Ser Glu Glu Val Leu Ser Glu Asn  
180 185 190

Lys Phe Arg Glu Glu Ile Gly Met Pro Arg Arg Thr Ser Tyr Pro His  
195 200 205

Asp Ser Ala Leu Ile His Asp Asp Asn Thr Val Ser Leu Gly Phe Gln  
210 215 220

Gln Val Arg Leu His Pro Leu Leu  
225 230

<210> 35  
<211> 232  
<212> PRT  
<213> Enterohemorrhagic E. coli

<220>  
<221> MISC\_FEATURE

&lt;222&gt; (208)..(208)

&lt;223&gt; Xaa = Arg or His

&lt;400&gt; 35

Met Arg Pro Thr Ser Leu Asn Leu Val Leu His Gln Ser Ser Arg Ser  
 1 5 10 15

Ser Ser Met Ser Asp Thr Asp Ile Glu Ser Leu Val Lys Ala Ser Ser  
 20 25 30

Val Gln Trp Ile Lys Asn Asn Pro Gln Leu Arg Phe Gln Gly Thr Asp  
 35 40 45

His Asn Ile Tyr Gln Gln Ile Glu Ala Ala Leu Asp Lys Ile Gly Ser  
 50 55 60

Thr Glu Thr Gly Arg Val Leu Leu Asn Ala Ile Glu Ser Ile Ser Arg  
 65 70 75 80

Leu Lys Ser Glu Thr Val Val Ile His Leu Asn Ser Ser Arg Leu Gly  
 85 90 95

Val Met Ala His Arg Asp Ile Asp Ala Glu Asn His Arg Gly Thr Gly  
 100 105 110

Ser Asp Phe His Cys Asn Leu Asn Ala Val Glu Tyr Pro Cys Gly Glu  
 115 120 125

Gly Ile Ser Val Val Asp Phe His Ala Thr Ile Val Phe His Glu Leu  
 130 135 140

Leu His Val Phe His Asn Leu Asn Gly Glu Arg Leu Lys Val Glu Ser  
 145 150 155 160

Ser Arg Ala Glu Ser Gln Lys Tyr Ser Pro Leu Leu Leu Glu Glu Ala  
 165 170 175

Arg Thr Val Gly Leu Gly Ala Phe Ser Glu Glu Val Leu Ser Glu Asn  
 180 185 190

Lys Phe His Glu Glu Ile Gly Met Pro Arg Arg Thr Ser Tyr Pro Xaa  
 195 200 205

Asp Ser Ala Leu Ile His Asp Asp Asn Thr Val Ser Leu Gly Phe Gln  
 210 215 220

Gln Val Arg Leu His Pro Leu Leu  
 225 230

<210> 36  
 <211> 168  
 <212> PRT

<213> *Citrobacter rodentium*

&lt;400&gt; 36

Tyr Phe Asn Glu Ser Pro Asn Val Tyr Asp Lys Lys Tyr Ile Ser Gly  
 1 5 10 15

Val Thr Arg Gly Val Ala Glu Leu Lys Gln Glu Gly Phe Ile Asn Glu  
 20 25 30

Lys Ala Arg Arg Leu Ala Tyr Met Gln Ala Met Tyr Ser Val Cys Pro  
 35 40 45

Glu Glu Phe Lys Pro Ile Ser Arg Asn Glu Ala Ser Thr Pro Glu Gly  
 50 55 60

Ser Trp Leu Thr Val Ile Ser Gly Lys Arg Pro Met Gly Gln Phe Ser  
 65 70 75 80

Val Asp Ser Leu Tyr His Pro Asp Leu His Ala Leu Cys Glu Leu Pro  
 85 90 95

Asp Ile Cys Cys Lys Ile Phe Pro Lys Glu Asn Asn Asp Phe Leu Tyr  
 100 105 110

Ile Val Ile Val Tyr Arg Asn Asp Ser Pro Leu Gly Glu Gln Arg Ala  
 115 120 125

Asn Arg Phe Ile Glu Leu Tyr Asn Ile Lys Arg Asp Ile Met Gln Glu  
 130 135 140

Leu Asn Tyr Glu Ser Pro Glu Leu Lys Ala Val Lys Ser Glu Met Ile  
 145 150 155 160

Ile Ala Arg Glu Met Gly Glu Ile  
 165

&lt;210&gt; 37

&lt;211&gt; 154

&lt;212&gt; PRT

<213> *Citrobacter rodentium*

&lt;400&gt; 37

Asn Val Tyr Asp Lys Lys Tyr Ile Ser Gly Val Thr Arg Gly Val Ala  
 1 5 10 15

Glu Leu Lys Gln Glu Gly Phe Ile Asn Glu Lys Ala Arg Arg Leu Ala  
 20 25 30

Tyr Met Gln Ala Met Tyr Ser Val Cys Pro Glu Glu Phe Lys Pro Ile  
 35 40 45

Ser Arg Asn Glu Ala Ser Thr Pro Glu Gly Ser Trp Leu Thr Val Ile  
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50

55

Ser Gly Lys Arg Pro Met Gly Gln Phe Ser Val Asp Ser Leu Tyr His  
65 70 75 80

Pro Asp Leu His Ala Leu Cys Glu Leu Pro Asp Ile Cys Cys Lys Ile  
85 90 95

Phe Pro Lys Glu Asn Asn Asp Phe Leu Tyr Ile Val Ile Val Tyr Arg  
100 105 110

Asn Asp Ser Pro Leu Gly Glu Gln Arg Ala Asn Arg Phe Ile Glu Leu  
115 120 125

Tyr Asn Ile Lys Arg Asp Ile Met Gln Glu Leu Asn Tyr Glu Ser Pro  
130 135 140

Glu Leu Lys Ala Val Lys Ser Glu Met Ile  
145 150

<210> 38  
<211> 224  
<212> PRT  
<213> Enteropathogenic E. coli  
<400> 38

Met Ile Asn Pro Val Thr Asn Thr Gln Gly Val Ser Pro Ile Asn Thr  
1 5 10 15

Lys Tyr Ala Glu His Val Val Lys Asn Ile Tyr Pro Lys Ile Lys His  
20 25 30

Asp Tyr Phe Asn Glu Ser Pro Asn Ile Tyr Asp Lys Lys Tyr Ile Ser  
35 40 45

Gly Ile Thr Arg Gly Val Ala Glu Leu Lys Gln Glu Glu Phe Val Asn  
50 55 60

Glu Lys Ala Arg Arg Phe Ser Tyr Met Lys Thr Met Tyr Ser Val Cys  
65 70 75 80

Pro Glu Ala Phe Glu Pro Ile Ser Arg Asn Glu Ala Ser Thr Pro Glu  
85 90 95

Gly Ser Trp Leu Thr Val Ile Ser Gly Lys Arg Pro Met Gly Gln Phe  
100 105 110

Ser Val Asp Ser Leu Tyr Asn Pro Asp Leu His Ala Leu Cys Glu Leu  
115 120 125

Pro Asp Ile Cys Cys Lys Ile Phe Pro Lys Glu Asn Asn Asp Phe Leu  
130 135 140

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Tyr Ile Val Val Val Tyr Arg Asn Asp Ser Pro Leu Gly Glu Gln Arg  
145 150 155 160

Ala Asn Arg Phe Ile Glu Leu Tyr Asn Ile Lys Arg Asp Ile Met Gln  
165 170 175

Glu Leu Asn Tyr Glu Leu Pro Glu Leu Lys Ala Val Lys Ser Glu Met  
180 185 190

Ile Ile Ala Arg Glu Met Gly Glu Ile Phe Ser Tyr Met Pro Gly Glu  
195 200 205

Ile Asp Ser Tyr Met Lys Tyr Ile Asn Asn Lys Leu Ser Lys Ile Glu  
210 215 220

<210> 39  
<211> 224  
<212> PRT  
<213> Enterohemorrhagic E. coli

<400> 39

Met Ile Asn Pro Val Thr Asn Thr Gln Gly Val Ser Pro Ile Asn Thr  
1 5 10 15

Lys Tyr Ala Glu His Val Val Lys Asn Ile Tyr Pro Glu Ile Lys His  
20 25 30

Asp Tyr Phe Asn Glu Ser Pro Asn Ile Tyr Asp Lys Lys Tyr Ile Ser  
35 40 45

Gly Ile Thr Arg Gly Val Ala Glu Leu Lys Gln Glu Glu Phe Val Asn  
50 55 60

Glu Lys Ala Arg Arg Phe Ser Tyr Met Lys Thr Met Tyr Ser Val Cys  
65 70 75 80

Pro Glu Ala Phe Glu Pro Ile Ser Arg Asn Glu Ala Ser Thr Pro Glu  
85 90 95

Gly Ser Trp Leu Thr Val Ile Ser Gly Lys Arg Pro Met Gly Gln Phe  
100 105 110

Ser Val Asp Ser Leu Tyr Asn Pro Asp Leu His Ala Leu Cys Glu Leu  
115 120 125

Pro Asp Ile Cys Cys Lys Ile Phe Pro Lys Glu Asn Asn Asp Phe Leu  
130 135 140

Tyr Ile Val Val Val Tyr Arg Asn Asp Ser Pro Leu Gly Glu Gln Arg  
145 150 155 160



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Ala Asn Arg Phe Ile Glu Leu Tyr Asn Ile Lys Arg Asp Ile Met Gln  
165 170 175

Glu Leu Asn Tyr Glu Leu Pro Glu Leu Lys Ala Val Lys Ser Glu Met  
180 185 190

Ile Ile Ala Arg Glu Met Gly Glu Ile Phe Ser Tyr Met Pro Gly Glu  
195 200 205

Ile Asp Ser Tyr Met Lys Tyr Ile Asn Asn Lys Leu Ser Lys Ile Glu  
210 215 220

<210> 40  
<211> 188  
<212> PRT  
<213> Citrobacter rodentium

<400> 40

Met Leu Pro Thr Ser Gly Ser Ser Ala Asn Leu Tyr Ser Trp Met Tyr  
1 5 10 15

Ile Ser Gly Lys Glu Asn Pro Ser Thr Pro Glu Ser Val Ser Glu Leu  
20 25 30

Asn His Asn His Phe Leu Ser Pro Glu Leu Gln Glu Lys Leu Asp Val  
35 40 45

Met Phe Ala Ile Tyr Ser Cys Ala Arg Asn Asn Asp Glu Arg Glu Asn  
50 55 60

Ile Tyr Pro Glu Leu Arg Asp Phe Val Ser Ser Leu Met Asp Lys Arg  
65 70 75 80

Asn Asn Val Phe Glu Val Ile Asn Glu Asp Thr Asp Glu Val Thr Gly  
85 90 95

Ala Leu Arg Ala Gly Met Thr Ile Glu Asp Arg Asp Ser Tyr Ile Arg  
100 105 110

Asp Leu Phe Phe Leu His Ser Leu Lys Val Lys Ile Glu Glu Ser Arg  
115 120 125

Gln Asp Lys Glu Asp Trp Lys Cys Lys Val Tyr Asp Leu Leu Cys Pro  
130 135 140

His His Ser Ser Glu Leu Tyr Gly Asp Leu Arg Ala Ile Lys Cys Leu  
145 150 155 160

Val Glu Gly Cys Ser Asp Asp Phe Ser Pro Phe Asp Thr Ile Lys Val  
165 170 175

SB-0008.ST25.txt  
 Pro Asp Leu Thr Tyr Asn Lys Gly Ser Leu Gln Cys  
 180 185

<210> 41  
 <211> 171  
 <212> PRT  
 <213> Citrobacter rodentium

<400> 41

Ala Asn Leu Tyr Ser Trp Met Tyr Ile Ser Gly Lys Glu Asn Pro Ser  
 1 5 10 15

Thr Pro Glu Ser Val Ser Glu Leu Asn His Asn His Phe Leu Ser Pro  
 20 25 30

Glu Leu Gln Glu Lys Leu Asp Val Met Phe Ala Ile Tyr Ser Cys Ala  
 35 40 45

Arg Asn Asn Asp Glu Arg Glu Asn Ile Tyr Pro Glu Leu Arg Asp Phe  
 50 55 60

Val Ser Ser Leu Met Asp Lys Arg Asn Asn Val Phe Glu Val Ile Asn  
 65 70 75 80

Glu Asp Thr Asp Glu Val Thr Gly Ala Leu Arg Ala Gly Met Thr Ile  
 85 90 95

Glu Asp Arg Asp Ser Tyr Ile Arg Asp Leu Phe Phe Leu His Ser Leu  
 100 105 110

Lys Val Lys Ile Glu Glu Ser Arg Gln Asp Lys Glu Asp Trp Lys Cys  
 115 120 125

Lys Val Tyr Asp Leu Leu Cys Pro His His Ser Ser Glu Leu Tyr Gly  
 130 135 140

Asp Leu Arg Ala Ile Lys Cys Leu Val Glu Gly Cys Ser Asp Asp Phe  
 145 150 155 160

Ser Pro Phe Asp Thr Ile Lys Val Pro Asp Leu  
 165 170

<210> 42  
 <211> 189  
 <212> PRT  
 <213> Enteropathogenic E. coli

<400> 42

Met Leu Pro Thr Ser Gly Ser Ser Ala Asn Leu Tyr Ser Trp Met Tyr  
 1 5 10 15

Val Ser Gly Arg Gly Asn Pro Ser Thr Pro Glu Ser Val Ser Glu Leu  
 20 25 30

Asn His Asn His Phe Leu Ser Pro Glu Leu Gln Asp Lys Leu Asp Val  
 35 40 45

Met Val Ser Ile Tyr Ser Cys Ala Arg Asn Asn Asn Glu Leu Glu Glu  
 50 55 60

Ile Phe Gln Glu Leu Ser Ala Phe Val Ser Gly Leu Met Asp Lys Arg  
 65 70 75 80

Asn Ser Val Phe Glu Val Arg Asn Glu Asn Thr Asp Glu Val Val Gly  
 85 90 95

Ala Leu Arg Ala Gly Met Thr Ile Glu Asp Arg Asp Ser Tyr Ile Arg  
 100 105 110

Asp Leu Phe Phe Leu His Ser Leu Lys Val Lys Ile Glu Glu Ser Arg  
 115 120 125

Gln Gly Lys Glu Asp Ser Lys Cys Lys Val Tyr Asn Leu Leu Cys Pro  
 130 135 140

His His Ser Ser Glu Leu Tyr Gly Asp Leu Arg Ala Met Lys Cys Leu  
 145 150 155 160

Val Glu Gly Cys Ser Asp Asp Phe Asn Pro Phe Asp Ile Ile Arg Val  
 165 170 175

Pro Asp Leu Thr Tyr Asn Lys Gly Ser Leu Gln Cys Gly  
 180 185

<210> 43  
 <211> 189  
 <212> PRT  
 <213> Enterohemorrhagic E. coli

<400> 43

Met Leu Pro Thr Ser Gly Ser Ser Ala Asn Leu Tyr Ser Trp Met Tyr  
 1 5 10 15

Val Ser Gly Arg Gly Asn Pro Ser Thr Pro Glu Ser Val Ser Glu Leu  
 20 25 30

Asn His Asn His Phe Leu Ser Pro Glu Leu Gln Asp Lys Leu Asp Val  
 35 40 45

Met Val Ser Ile Tyr Ser Cys Ala Arg Asn Asn Asn Glu Leu Glu Glu  
 50 55 60

Ile Phe Gln Glu Leu Ser Ala Phe Val Ser Gly Leu Met Asp Lys Arg  
 65 70 75 80

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Asn Ser Val Phe Glu Val Arg Asn Glu Asn Thr Asp Glu Val Val Gly  
85 90 95

Ala Leu Arg Ala Gly Met Thr Ile Glu Asp Arg Asp Ser Tyr Ile Arg  
100 105 110

Asp Leu Phe Phe Leu His Ser Leu Lys Val Lys Ile Glu Glu Ser Arg  
115 120 125

Gln Gly Lys Glu Asp Ser Lys Cys Lys Val Tyr Asn Leu Leu Cys Pro  
130 135 140

His His Ser Ser Glu Leu Tyr Gly Asp Leu Arg Ala Met Lys Cys Leu  
145 150 155 160

Val Glu Gly Cys Ser Asp Asp Phe Asn Pro Phe Asp Ile Ile Arg Val  
165 170 175

Pro Asp Leu Thr Tyr Asn Lys Gly Ser Leu Gln Cys Gly  
180 185

<210> 44  
<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer Z6024F

<400> 44  
agatctgaag gagatattat gaacattcaa ccgaccatac

40

<210> 45  
<211> 34  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer Z6024R

<400> 45  
ctcgaggact cttgtttctt cgattatatc aaag

34

<210> 46  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> primer NT10

<400> 46  
ccggtacctc taaccattga cgcactcg

28

<210> 47  
<211> 29  
<212> DNA

<213> Artificial Sequence

<220>

<223> primer NT11

<400> 47

aacctgcaga actaggtatc tctaatagcc

29

<210> 48

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> primer NT12

<400> 48

aacctgcagc tgactatcct cgtatatgg

29

<210> 49

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> primer NT13

<400> 49

ccgagctcag gtaatgagac tgtcagc

27

<210> 50

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> primer del1F

<400> 50

ggtaccacca cacagaataa tc

22

<210> 51

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> primer del1R

<400> 51

cgctagccta tatactgctg ttgggtt

26

<210> 52

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> primer del12F

<400> 52

gctagctgac aggcaactct tggactgg

28

<210> 53  
 <211> 29  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer del2R

<400> 53  
 gagctcaaca taatttgatg gattatgat

29

<210> 54  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer

<400> 54  
 ttccatatga acattcaacc gacc

24

<210> 55  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> primer

<400> 55  
 ggaattcaat aatagctgcc atcc

24

<210> 56  
 <211> 135  
 <212> PRT  
 <213> Salmonella

<400> 56

Met Glu Ser Lys Asn Ser Asp Tyr Val Ile Pro Asp Ser Val Lys Asn  
 1 5 10 15

Tyr Asn Gly Glu Pro Leu Tyr Ile Leu Val Ser Leu Trp Cys Lys Leu  
 20 25 30

Gln Glu Lys Trp Ile Ser Arg Asn Asp Ile Ala Glu Ala Phe Gly Ile  
 35 40 45

Asn Leu Arg Arg Ala Ser Phe Ile Ile Thr Tyr Ile Ser Arg Arg Lys  
 50 55 60

Glu Lys Ile Ser Phe Arg Val Arg Tyr Val Ser Tyr Gly Asn Leu His  
 65 70 75 80

Tyr Lys Arg Leu Glu Ile Phe Ile Tyr Asn Val Asn Leu Glu Ala Ala  
 85 90 95

Pro Thr Glu Ser His Val Ser Thr Gly Pro Lys Arg Lys Thr Leu Arg  
100 105 110

Val Gly Asn Gly Ile Val Gly Gln Ser Ser Ile Trp Asn Glu Met Ile  
115 120 125

Met Arg Arg Lys Lys Glu Ser  
130 135

<210> 57  
<211> 131  
<212> PRT  
<213> Enterobacteriaceae

<400> 57

Met Cys Glu Gly Tyr Val Glu Lys Pro Leu Tyr Leu Leu Ile Ala Glu  
1 5 10 15

Trp Met Met Ala Glu Asn Arg Trp Val Ile Ala Arg Glu Ile Ser Ile  
20 25 30

His Phe Asp Ile Glu His Ser Lys Ala Val Asn Thr Leu Thr Tyr Ile  
35 40 45

Leu Ser Glu Val Thr Glu Ile Ser Cys Glu Val Lys Met Ile Pro Asn  
50 55 60

Lys Leu Glu Gly Arg Gly Cys Gln Cys Gln Arg Leu Val Lys Val Val  
65 70 75 80

Asp Ile Asp Glu Gln Ile Tyr Ala Arg Leu Arg Asn Asn Ser Arg Glu  
85 90 95

Lys Leu Val Gly Val Arg Lys Thr Pro Arg Ile Pro Ala Val Pro Leu  
100 105 110

Thr Glu Leu Asn Arg Glu Gln Lys Trp Gln Met Met Leu Ser Lys Ser  
115 120 125

Met Arg Arg  
130

<210> 58  
<211> 170  
<212> PRT  
<213> Citrobacter rodentium

<400> 58

Met Cys Pro Asp Asn Thr His Ala Lys Lys Gln Tyr Leu Thr Pro Gly  
1 5 10 15

Asn Asp Ile His Tyr Pro Gly Gln Thr Asn His Asp Ala Cys Phe Ile  
20 25 30

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Pro Val Ser Val Arg Gln Tyr Ala Gly Glu Pro Leu Tyr Ile Ile Val  
35 40 45

Ala His Trp Cys Leu Leu Gln Gln Asn Trp Val Gln Arg Asn Gln Ile  
50 55 60

Ala Glu Ala Phe His Ile Thr Ala Arg Arg Ala Ser Tyr Leu Ile Ala  
65 70 75 80

Tyr Leu Arg Ser Lys Thr Ser Arg Val Val Ser Ile Cys Arg His Gln  
85 90 95

Thr Leu Pro Asn Lys Ala Arg Arg Tyr Glu Ile Tyr Val Ile Arg Val  
100 105 110

Leu Asp Ser Pro Thr Pro Ser Thr Arg Arg Glu Lys Ala Gly Pro Pro  
115 120 125

Leu Val Ser Lys Arg Arg Val Gly Asn Gly Asp Arg Ser Met Ala Asn  
130 135 140

Glu Leu Trp Asn Arg Leu Cys Ser Asn Arg Asn Ala Gly Lys Ile Leu  
145 150 155 160

Lys Lys Lys Glu Asp Glu Asp Asp Gly Thr  
165 170

<210> 59  
<211> 12  
<212> PRT  
<213> Citrobacter rodentium

<220>  
<221> MISC\_FEATURE  
<222> (9)..(9)  
<223> Xaa = Ile or Leu

<400> 59

Gln Gln Glu Asn Ala Pro Ser Ser Xaa Gln Thr Arg  
1 5 10

<210> 60  
<211> 981  
<212> DNA  
<213> Enterohemorrhagic E. coli

<400> 60  
atgctttcac cgataaggac aactttccat aactcagtaa atatagtga gagttcaccc 60  
tgtcaaacgg tttcttttgc aggaaaggaa tatgagttaa aggtcattga tgaaaaaacg 120  
cctattcttt ttcaagtgggt tgaacctaat cctgaacgat ataagaaaga tgaggttcca 180  
atagttaata ctaagcagca tccctattta gataatgtca caaatgcggc aaggatagag 240



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agtgatcgta	tgataggtat	ttttgttgat	ggcgattttt	cagtcaacca	aaagactgct	300
ttttcaaaat	tggaacgaga	ttttgaaaat	gtaatgataa	tctatcgggg	agatgttgac	360
ttcagtatgt	atgacagaaa	actatcagat	atttatcatg	atattatatg	tgaacaaagg	420
ttacgaactg	aagacaaaag	agatgaatac	ttgttgaatc	tgtagagaa	agagctgagg	480
gaaatttcaa	aggcgagga	ttctttgatt	tctatgtatg	caaagaaaag	aatcatgca	540
tggtttgatt	tcttcagaaa	tttagcctta	ttaaaagcag	gagagatatt	caggtgcaca	600
tataatacaa	agaatcacgg	tatttcattc	ggggaggggt	gtatctatct	tgatatggat	660
atgatactta	caggtaagct	tggtacaata	tatgctcctg	atggaatttc	aatgcatgtg	720
gatcgtcgta	atgatagtgt	aaatattgaa	aatagtgcaa	taattgttaa	ccgtagtaat	780
catcctgctc	tacttgaggg	actttctttt	atgcatagta	aagtagatgc	tcatccatat	840
tatgatgggt	tggggaaagg	agttaagaaa	tattttaatt	ttacaccatt	acataattat	900
aatcattttt	gtgactttat	tgagttaaac	caccctaata	taatcatgaa	cacaagtcag	960
tatacatgca	gttcatggta	a				981

<210> 61  
 <211> 531  
 <212> DNA  
 <213> Enterohemorrhagic E. coli

<400> 61						
atgaatgtcc	ttcgagctca	agtagcatct	agcggtcgag	gggagtttac	attaggtaat	60
gagactgtca	gcattgtatt	taatgaaacc	gatgggcgtt	ttctatccag	cggcagtagt	120
gggggattgc	ttactgagtt	attcctttat	gggtttaata	acggccctga	agctcttcgc	180
gataggatgc	tcagtatgct	ttcggactca	ggtgaagcac	aatcgcaaga	gagtattcag	240
gacaaaatat	ctcaatgtaa	gtttcctggt	agttcaggaa	atttccagtg	cccgccagag	300
tctattcagt	gtccaattac	actagagaga	cccgaagaag	gagtgtttgt	caaaaattca	360
gatagttcgg	cagtatgctg	cttatttgat	tttgatgcat	tttctcgttt	agctagttaa	420
ggctcatatc	atccactgac	ccgagaacca	ataacggcat	caatgattat	aagtcctgat	480
aaatgtgttt	atgacccat	caagggaaac	ttcattataa	aagatagtta	a	531

<210> 62  
 <211> 912  
 <212> DNA  
 <213> Enterohemorrhagic E. coli

<400> 62						
atgttatcgc	cctcttctat	aaatttgagg	tgttcatgga	attctttaac	cagaaacctg	60
acttcgcctg	ataatcgtgt	tttatcctct	gtaagggatg	ctgctgttca	ctctgatagc	120
gggacgcaag	taacggttgg	caacagaaca	tatcggtgtg	tggtcactga	taataagttt	180
tgcgttacaa	gagaaagtca	tagtggttgt	tttactaatc	tgttgcacag	gttgggatgg	240
cctaagggag	agattagcag	aaaaattgag	gctatgctga	atacatcgcc	agtgagcacg	300

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actatagaaa	gaggctctgt	tcattcgaac	agacctgatt	tacctccagt	ggattatgcg	360
cagccggagt	tacctccagc	ggattatact	caatcagagt	tgccgagggt	tagcaacaat	420
aatcacccg	tgccaggtaa	tggtattggt	aaagggtgga	atgctgtcgt	gtatgaagat	480
atggaagata	caacaaaagt	gttgaagatg	tttactatat	ctcaaagcca	tgaagagggtg	540
acaagcgaag	ttcgttggtt	caatcagtat	tatgggtccg	ggagtgcaga	gaaaatatat	600
aatgataatg	gaaatgttat	tggtattaga	atgaataaaa	taaatgggga	atctcttttg	660
gatattccat	cattaccagc	acaagctgaa	caggctattt	acgatatggt	tgacagactg	720
gagaaaaaag	gaattctttt	tggtgataca	acagaaacaa	atgttttata	tgatcgatatg	780
agaaatgaat	ttaatccaat	agatatatca	tcttataatg	tttctgatat	ttcatggagt	840
gaacatcaag	tcatgcaatc	ttatcacgga	ggaaagctgg	atcttattag	tgtagtatta	900
agtaagatat	aa					912

<210> 63  
 <211> 882  
 <212> DNA  
 <213> Enterohemorrhagic E. coli

<400> 63						
atgttatcgc	catattctgt	aaatttgga	tggtcatgga	attctttaac	cagaaacctg	60
acttcgcctg	ataatcgtgt	tttatcctct	gtaagggatg	ctgccgttca	ttctgataat	120
ggggcgcaag	taaagggttg	caacagaaca	tatcgtgttg	ttgccaccga	taataagttt	180
tgcgttacaa	gagaaagtca	tagtggttgt	tttactaatc	tggtgcacag	gctgggatgg	240
cctaaggggg	agattagcag	gaaaattgag	gtcatgctga	atgcatcacc	agtgagcgct	300
gctatggaaa	gaggcattgt	tcattcgaac	agacctgatt	tacctcctgt	tgattatgca	360
ccgccagagt	taccgagtgt	ggactataac	aggttgtcag	tacctggtaa	tggtattggc	420
aaagggggga	acgctgtagt	atatgaagat	gctgaggatg	caacaaaagt	cctgaagatg	480
tttactacat	ctcaaagcaa	tgaagagggtg	acaagcgaag	ttcgttgctt	caaccaatat	540
tatgggtgccg	ggagtgcaga	aaaaatatat	ggcaataatg	gtgatattat	tggtattaga	600
atggataaaa	taaatggaga	atcgctttta	aatatttcgt	ccttgccagc	acaggctgag	660
catgctattt	acgatatggt	tgatagactg	gagcaaaaaag	gaattctttt	tgatgataca	720
acagagacaa	atgtcttata	tgaccgcgcg	agaatgagt	ttaatccaat	agatatatca	780
tcttataatg	tttccgaccg	ttcatggagt	gaaagtcaaa	taatgcaatc	ttatcatggc	840
ggaaagcaag	atcttattag	tgtggtatta	agtaaaattt	ag		882

<210> 64  
 <211> 153  
 <212> DNA  
 <213> Enterohemorrhagic E. coli

<400> 64						
atggtaatgc	ctggattagt	atcatatata	tcatcgactt	cattcgcgaa	tgagatggcg	60

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gagatgcgtc agcaggtaat ggaagggcag attggtggat ttctcctggg aggggagaga	120
gtagagttt cttatttatt tcaattgcat taa	153

<210> 65  
 <211> 576  
 <212> DNA  
 <213> Enterohemorrhagic E. coli

<400> 65 atgccattaa cctcagatat tagatcacat tcattttaatc ttgggggtgga ggttggtcgt	60
gcccgaattg tagccaatgg gcgcggagat attacagtcg gtggtgaaac tgtcagtatt	120
gtgtatgatt ctactaatgg gcgcttttca tccagtggcg gtaatggcgg attgctttct	180
gagttattgc ttttgggatt taatagtggc cctcgagccc ttggtgagag aatgctaagt	240
atgcttttcgg actcaggatga agcacaatcg caagagagta ttcagaacaa aatatctcaa	300
tgtaagtttt ctgtttgtcc agagagactt cagtgtccgc ttgaggctat tcagtgtcca	360
attacactgg agcagcctga aaaaggtatt tttgtgaaga attcagatgg ttcagatgta	420
tgtactttat ttgatgccgc tgcattttct cgtttggttg gtgaaggctt accccacca	480
ctgacccggg aaccaataac ggcatcaata attgtaaaac atgaagaatg ctttatgac	540
gataccagag gaaacttcat tataaagggt aattga	576

<210> 66  
 <211> 630  
 <212> DNA  
 <213> Enterohemorrhagic E. coli

<220>  
 <221> misc\_feature  
 <222> (439)..(439)  
 <223> n = any nucleotide

<400> 66 atgcctgtta ccaccttaag tatcccaagt atatctcaat tatctcctgc aagagtacag	60
tctttgcagg atgcagccag acttgaaagt ggaataagaa tatccattgg tagtggccaa	120
tattctgttc actatgtcca actactggat ggatttttcag ttgaaccggt gagaggaggc	180
ttactggata ggctattggg gcgtgagcat cgaatggata gaagggtgt ggctctggaa	240
aggcaattaa atggaggtgt cgatttttta agtagtgta ataactatct tcagagtgtc	300
atggcagaac acagagaaaa taaaacaggt aataaaatat taatggaaaa aataaattct	360
tgtgtatttg gaacggattc taatcacttt tcttgcccgg agtcattttt gacatgcccg	420
ataacgctgg acacacctna gactggagtg ttcattgagaa actcacgagg tgctgagata	480
tgctctctat atgataagga tgcgttagtg caacttggtg aaactgggtg aactcatcct	540
ctgagtcgag aacctataac agaataatg attatgagaa aagacgaatg tcactttgat	600
gcaaaaagag aagctttttg ttgtaagtga	630

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<210> 67  
<211> 642  
<212> DNA  
<213> Enterohemorrhagic E. coli

<400> 67  
atgcctgtag atttaacgcc ttatatTTTA cctgggggTta gttttttgtc tgacattcct 60  
caagaaacct tgtctgagat acgtaatcag actattcgtg gagaagctca agtaagactg 120  
ggtagagttga tgggtgtcaat acgacctatg caggtaaagt gatattttat ggggaagtctt 180  
aaccaggatg gtttatcgaa tgataacatc cagattggcc ttcaatatat agaacatatt 240  
gaacgtacac ttaatcatgg tagtttgaca agccgtgaag ttacagtact gcgtgaaatt 300  
gagatgctcg aaaatatgga attgctttct aactaccagt tagaggagtt gttagataaa 360  
attgaagtat gtgcatttaa tgtggagcat gcacaattgc aagtgccaga gagcttacga 420  
acatgccctg ttacattatg tgaaccagaa gatggggat ttatgaggaa ttcaatgaat 480  
tcaaagtgtt gtatgttgta tgataaaatg tcattaatat atcttgtaa aacaagggcg 540  
gctcatcctt tgagcaggga atcaatcgca gtttcaatga ttgtaggaag agataattgt 600  
gcttttgact ctgacagagg taacttcggt ttaaaaaatt aa 642

<210> 68  
<211> 642  
<212> DNA  
<213> Enterohemorrhagic E. coli

<400> 68  
atgcctgtag atttaacgcc ttatatTTTA cctgggggTta gttttttgtc tgacattcct 60  
caagaaacct tgtctgagat acgtaatcag actattcgtg gagaagctca aataagactg 120  
ggtagagttga tgggtgtcaat acgacctatg caggtaaagt gatattttat ggggaagtctt 180  
aaccaggatg gtttatcgaa tgataatata cagattggcc ttcaatatat agaacatatt 240  
gaacgtacac ttaatcatgg tagtttgaca agccgtgaag ttacagtact gcgtgaaatt 300  
gagatgctcg aaaatatgga tttgctttct aactaccagt tagaggagtt gttagataaa 360  
attgaagtat gtgcatttaa tgtggagcat gcacaattgc aagtgccaga gagcttacga 420  
acatgccctg ttacattatg tgaaccagaa gatggggat ttatgaggaa ttcaatgaat 480  
tcaaagtgtt gtatgttgta tgataaaatg gcattaatac atcttgtaa aacaagggcg 540  
gctcatcctt tgagcaggga atcaatcgca gtttcaatga ttgtaggaag agataattgt 600  
gcttttgacc ctgacagagg taacttcggt ttaaaaaatt aa 642

<210> 69  
<211> 630  
<212> DNA  
<213> Enterohemorrhagic E. coli

<400> 69  
atgcctgtta ccaccttaag tatcccaagt atatctcaat tatctcctgc aggagtacag 60  
tctttgcagg atgctgccag acttgaaagt ggaataagaa tatccattgg tagtggccaa 120

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tattctgttc actatgtcca gctactggat ggattttcag ttgaaccggt gagaggaggc	180
ttactggata ggctattggg gcgtgagcat cgaatggaga gaagggctgt ggctctggaa	240
aggcaattaa atggaggtgt cgatttttta agtagtggtta ataactatct tcagagtgtc	300
atggcagaac acagagaaaa taaaacaagt aataaaaatat taatggaaaa aataaattct	360
tgtttattta gacctgattc taatcacttt tcttgcccgg agtcattttt gacatgcccg	420
ataacgctgg acacacctga gactgggggtg ttcattgagaa actcacgagg tgctgagata	480
tgctctctat atgataagga cgcgttagtg caacttggtg aaactgggtg agctcatcct	540
ctgagtcgag aacctataac agaatacaatg attatgagaa aagatgaatg tcactttgat	600
acaaaaagag aagctttttg ttgtaagtga	630

<210> 70  
 <211> 576  
 <212> DNA  
 <213> Enterohemorrhagic E. coli

<400> 70	
atgccattaa cctcagatat tagatcacat tcatttaatc ttgggggtgga gggtgttcgt	60
gcccgaattg tagccaatgg gcgcggagat attacagtcg gtggtgaaac tgtcagtatt	120
gtgtatgatt ctactaatgg gcgcttttca tccagtggcg gtaatggcgg attgctttct	180
gagttattgc ttttgggatt taatagtggg cctcgagccc ttggtgagag aatgctaagt	240
atgctttcgg actcaggtga agcacaatcg caagagagta ttcagaacaa aatatctcaa	300
tgtaagtttt ctgtttgtcc agagagactt cagtgccgcg ttgaggctat tcartgtcca	360
attacactgg agcagcctga aaaaggtatt tttgtgaaga attcagatgg ttcagatgta	420
tgtactttat ttgatgccgc tgcattttct cgtttggttg gtgaaggctt accccaccca	480
ctgaccgagg aaccaataac ggcatcaata attgtaaaac atgaagaatg catttatgac	540
gataccagag gaaacttcgt tataaagggt aattga	576

<210> 71  
 <211> 510  
 <212> DNA  
 <213> Enterohemorrhagic E. coli

<400> 71	
atggacgctt ttattgtaga tcctgttcaa ggggaactat attcgggttt aagccataca	60
gaactagccg atatcattag attggctgat tctgttgaaa atcaattgaa tggaggcaat	120
tcatttcttg atgtattcag tacatatatg gggcaggtta tttctgaatt tatgcatagt	180
aatgataaca gaattgaatt gttacagcgg cgattacatt catgttcatt tttagttaat	240
attgaagaaa tgtcttacat agatgaagca ttacagtgcc cgattacgct ggcaattcct	300
caacgaggtg tttttttaag aaatgctgaa gggtccagag tatgtagttt atatgatgaa	360
atggctcttt ctcgtataat taatgatggg atgcatcacc cactaagcag agagccaata	420
acattatcaa tgcttggtggc cagagagcag tgtgagtttg attgcagtat cggtcacttt	480

acggtgagga gtgattgtta ttcagtgtag 510

<210> 72  
 <211> 231  
 <212> DNA  
 <213> Enterohemorrhagic E. coli

<400> 72  
 atggcagacc gcaaacagca ccgcgctatc gcggagcgtc gtcacatcca gactgaaatc 60  
 aaccgcagac tttcccgcgc atcacgcgtc gcgcaaatca tgcacatcaa tatgctgcat 120  
 gagcgcagcc acgcactatc aaacatttat tccgcctctg ttttcagcta tctggcggat 180  
 gatctgcacg agtttcaaca gctcatccag cagcaaaaca aactccatta a 231

<210> 73  
 <211> 176  
 <212> PRT  
 <213> Enterohemorrhagic E. coli

<400> 73  
 Met Asn Val Leu Arg Ala Gln Val Ala Ser Ser Gly Arg Gly Glu Phe  
 1 5 10 15  
 Thr Leu Gly Asn Glu Thr Val Ser Ile Val Phe Asn Glu Thr Asp Gly  
 20 25 30  
 Arg Phe Leu Ser Ser Gly Ser Ser Gly Gly Leu Leu Thr Glu Leu Phe  
 35 40 45  
 Leu Tyr Gly Phe Asn Asn Gly Pro Glu Ala Leu Arg Asp Arg Met Leu  
 50 55 60  
 Ser Met Leu Ser Asp Ser Gly Glu Ala Gln Ser Gln Glu Ser Ile Gln  
 65 70 75 80  
 Asp Lys Ile Ser Gln Cys Lys Phe Pro Val Ser Ser Gly Asn Phe Gln  
 85 90 95  
 Cys Pro Pro Glu Ser Ile Gln Cys Pro Ile Thr Leu Glu Arg Pro Glu  
 100 105 110  
 Glu Gly Val Phe Val Lys Asn Ser Asp Ser Ser Ala Val Cys Cys Leu  
 115 120 125  
 Phe Asp Phe Asp Ala Phe Ser Arg Leu Ala Ser Glu Gly Ser Tyr His  
 130 135 140  
 Pro Leu Thr Arg Glu Pro Ile Thr Ala Ser Met Ile Ile Ser Pro Asp  
 145 150 155 160  
 Lys Cys Val Tyr Asp Pro Ile Lys Gly Asn Phe Ile Ile Lys Asp Ser  
 165 170 175

<210> 74  
 <211> 303  
 <212> PRT  
 <213> Enterohemorrhagic E. coli

<400> 74

Met Leu Ser Pro Ser Ser Ile Asn Leu Gly Cys Ser Trp Asn Ser Leu  
 1 5 10 15

Thr Arg Asn Leu Thr Ser Pro Asp Asn Arg Val Leu Ser Ser Val Arg  
 20 25 30

Asp Ala Ala Val His Ser Asp Ser Gly Thr Gln Val Thr Val Gly Asn  
 35 40 45

Arg Thr Tyr Arg Val Val Val Thr Asp Asn Lys Phe Cys Val Thr Arg  
 50 55 60

Glu Ser His Ser Gly Cys Phe Thr Asn Leu Leu His Arg Leu Gly Trp  
 65 70 75 80

Pro Lys Gly Glu Ile Ser Arg Lys Ile Glu Ala Met Leu Asn Thr Ser  
 85 90 95

Pro Val Ser Thr Thr Ile Glu Arg Gly Ser Val His Ser Asn Arg Pro  
 100 105 110

Asp Leu Pro Pro Val Asp Tyr Ala Gln Pro Glu Leu Pro Pro Ala Asp  
 115 120 125

Tyr Thr Gln Ser Glu Leu Pro Arg Val Ser Asn Asn Lys Ser Pro Val  
 130 135 140

Pro Gly Asn Val Ile Gly Lys Gly Gly Asn Ala Val Val Tyr Glu Asp  
 145 150 155 160

Met Glu Asp Thr Thr Lys Val Leu Lys Met Phe Thr Ile Ser Gln Ser  
 165 170 175

His Glu Glu Val Thr Ser Glu Val Arg Cys Phe Asn Gln Tyr Tyr Gly  
 180 185 190

Ser Gly Ser Ala Glu Lys Ile Tyr Asn Asp Asn Gly Asn Val Ile Gly  
 195 200 205

Ile Arg Met Asn Lys Ile Asn Gly Glu Ser Leu Leu Asp Ile Pro Ser  
 210 215 220

Leu Pro Ala Gln Ala Glu Gln Ala Ile Tyr Asp Met Phe Asp Arg Leu  
 225 230 235 240

Glu Lys Lys Gly Ile Leu Phe Val Asp Thr Thr Glu Thr Asn Val Leu  
245 250 255

Tyr Asp Arg Met Arg Asn Glu Phe Asn Pro Ile Asp Ile Ser Ser Tyr  
260 265 270

Asn Val Ser Asp Ile Ser Trp Ser Glu His Gln Val Met Gln Ser Tyr  
275 280 285

His Gly Gly Lys Leu Asp Leu Ile Ser Val Val Leu Ser Lys Ile  
290 295 300

<210> 75

<211> 293

<212> PRT

<213> Enterohemorrhagic E. coli

<400> 75

Met Leu Ser Pro Tyr Ser Val Asn Leu Gly Cys Ser Trp Asn Ser Leu  
1 5 10 15

Thr Arg Asn Leu Thr Ser Pro Asp Asn Arg Val Leu Ser Ser Val Arg  
20 25 30

Asp Ala Ala Val His Ser Asp Asn Gly Ala Gln Val Lys Val Gly Asn  
35 40 45

Arg Thr Tyr Arg Val Val Ala Thr Asp Asn Lys Phe Cys Val Thr Arg  
50 55 60

Glu Ser His Ser Gly Cys Phe Thr Asn Leu Leu His Arg Leu Gly Trp  
65 70 75 80

Pro Lys Gly Glu Ile Ser Arg Lys Ile Glu Val Met Leu Asn Ala Ser  
85 90 95

Pro Val Ser Ala Ala Met Glu Arg Gly Ile Val His Ser Asn Arg Pro  
100 105 110

Asp Leu Pro Pro Val Asp Tyr Ala Pro Pro Glu Leu Pro Ser Val Asp  
115 120 125

Tyr Asn Arg Leu Ser Val Pro Gly Asn Val Ile Gly Lys Gly Gly Asn  
130 135 140

Ala Val Val Tyr Glu Asp Ala Glu Asp Ala Thr Lys Val Leu Lys Met  
145 150 155 160

Phe Thr Thr Ser Gln Ser Asn Glu Glu Val Thr Ser Glu Val Arg Cys  
165 170 175

Phe Asn Gln Tyr Tyr Gly Ala Gly Ser Ala Glu Lys Ile Tyr Gly Asn  
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Asn Gly Asp Ile Ile Gly Ile Arg Met Asp Lys Ile Asn Gly Glu Ser  
195 200 205  
Leu Leu Asn Ile Ser Ser Leu Pro Ala Gln Ala Glu His Ala Ile Tyr  
210 215 220  
Asp Met Phe Asp Arg Leu Glu Gln Lys Gly Ile Leu Phe Val Asp Thr  
225 230 235 240  
Thr Glu Thr Asn Val Leu Tyr Asp Arg Ala Lys Asn Glu Phe Asn Pro  
245 250 255  
Ile Asp Ile Ser Ser Tyr Asn Val Ser Asp Arg Ser Trp Ser Glu Ser  
260 265 270  
Gln Ile Met Gln Ser Tyr His Gly Gly Lys Gln Asp Leu Ile Ser Val  
275 280 285  
Val Leu Ser Lys Ile  
290

<210> 76  
<211> 50  
<212> PRT  
<213> Enterohemorrhagic E. coli  
<400> 76

Met Val Met Pro Gly Leu Val Ser Tyr Ile Ser Ser Thr Ser Phe Ala  
1 5 10 15  
Asn Glu Met Ala Glu Met Arg Gln Gln Val Met Glu Gly Gln Ile Gly  
20 25 30  
Gly Phe Leu Leu Gly Gly Glu Arg Val Arg Val Ser Tyr Leu Phe Gln  
35 40 45  
Leu His  
50

<210> 77  
<211> 191  
<212> PRT  
<213> Enterohemorrhagic E. coli  
<400> 77

Met Pro Leu Thr Ser Asp Ile Arg Ser His Ser Phe Asn Leu Gly Val  
1 5 10 15  
Glu Val Val Arg Ala Arg Ile Val Ala Asn Gly Arg Gly Asp Ile Thr  
20 25 30

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Val Gly Gly Glu Thr Val Ser Ile Val Tyr Asp Ser Thr Asn Gly Arg  
35 40 45

Phe Ser Ser Ser Gly Gly Asn Gly Gly Leu Leu Ser Glu Leu Leu Leu  
50 55 60

Leu Gly Phe Asn Ser Gly Pro Arg Ala Leu Gly Glu Arg Met Leu Ser  
65 70 75 80

Met Leu Ser Asp Ser Gly Glu Ala Gln Ser Gln Glu Ser Ile Gln Asn  
85 90 95

Lys Ile Ser Gln Cys Lys Phe Ser Val Cys Pro Glu Arg Leu Gln Cys  
100 105 110

Pro Leu Glu Ala Ile Gln Cys Pro Ile Thr Leu Glu Gln Pro Glu Lys  
115 120 125

Gly Ile Phe Val Lys Asn Ser Asp Gly Ser Asp Val Cys Thr Leu Phe  
130 135 140

Asp Ala Ala Ala Phe Ser Arg Leu Val Gly Glu Gly Leu Pro His Pro  
145 150 155 160

Leu Thr Arg Glu Pro Ile Thr Ala Ser Ile Ile Val Lys His Glu Glu  
165 170 175

Cys Ile Tyr Asp Asp Thr Arg Gly Asn Phe Ile Ile Lys Gly Asn  
180 185 190

<210> 78  
<211> 209  
<212> PRT  
<213> Enterohemorrhagic E. coli

<220>  
<221> MISC\_FEATURE  
<222> (147)..(147)  
<223> xaa = any amino acid

<400> 78

Met Pro Val Thr Thr Leu Ser Ile Pro Ser Ile Ser Gln Leu Ser Pro  
1 5 10 15

Ala Arg Val Gln Ser Leu Gln Asp Ala Ala Arg Leu Glu Ser Gly Ile  
20 25 30

Arg Ile Ser Ile Gly Ser Gly Gln Tyr Ser Val His Tyr Val Gln Leu  
35 40 45

Leu Asp Gly Phe Ser Val Glu Pro Val Arg Gly Gly Leu Leu Asp Arg  
50 55 60

Leu Leu Gly Arg Glu His Arg Met Asp Arg Arg Ala Val Ala Leu Glu  
65 70 75 80

Arg Gln Leu Asn Gly Gly Val Asp Phe Leu Ser Ser Val Asn Asn Tyr  
85 90 95

Phe Gln Ser Val Met Ala Glu His Arg Glu Asn Lys Thr Gly Asn Lys  
100 105 110

Ile Leu Met Glu Lys Ile Asn Ser Cys Val Phe Gly Thr Asp Ser Asn  
115 120 125

His Phe Ser Cys Pro Glu Ser Phe Leu Thr Cys Pro Ile Thr Leu Asp  
130 135 140

Thr Pro Xaa Thr Gly Val Phe Met Arg Asn Ser Arg Gly Ala Glu Ile  
145 150 155 160

Cys Ser Leu Tyr Asp Lys Asp Ala Leu Val Gln Leu Val Glu Thr Gly  
165 170 175

Gly Thr His Pro Leu Ser Arg Glu Pro Ile Thr Glu Ser Met Ile Met  
180 185 190

Arg Lys Asp Glu Cys His Phe Asp Ala Lys Arg Glu Ala Phe Cys Cys  
195 200 205

Lys

<210> 79  
<211> 213  
<212> PRT  
<213> Enterohemorrhagic E. coli

<400> 79

Met Pro Val Asp Leu Thr Pro Tyr Ile Leu Pro Gly Val Ser Phe Leu  
1 5 10 15

Ser Asp Ile Pro Gln Glu Thr Leu Ser Glu Ile Arg Asn Gln Thr Ile  
20 25 30

Arg Gly Glu Ala Gln Val Arg Leu Gly Glu Leu Met Val Ser Ile Arg  
35 40 45

Pro Met Gln Val Asn Gly Tyr Phe Met Gly Ser Leu Asn Gln Asp Gly  
50 55 60

Leu Ser Asn Asp Asn Ile Gln Ile Gly Leu Gln Tyr Ile Glu His Ile  
65 70 75 80

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Glu Arg Thr Leu Asn His Gly Ser Leu Thr Ser Arg Glu Val Thr Val  
85 90 95

Leu Arg Glu Ile Glu Met Leu Glu Asn Met Glu Leu Leu Ser Asn Tyr  
100 105 110

Gln Leu Glu Glu Leu Leu Asp Lys Ile Glu Val Cys Ala Phe Asn Val  
115 120 125

Glu His Ala Gln Leu Gln Val Pro Glu Ser Leu Arg Thr Cys Pro Val  
130 135 140

Thr Leu Cys Glu Pro Glu Asp Gly Val Phe Met Arg Asn Ser Met Asn  
145 150 155 160

Ser Asn Val Cys Met Leu Tyr Asp Lys Met Ser Leu Ile Tyr Leu Val  
165 170 175

Lys Thr Arg Ala Ala His Pro Leu Ser Arg Glu Ser Ile Ala Val Ser  
180 185 190

Met Ile Val Gly Arg Asp Asn Cys Ala Phe Asp Ser Asp Arg Gly Asn  
195 200 205

Phe Val Leu Lys Asn  
210

<210> 80  
<211> 213  
<212> PRT  
<213> Enterohemorrhagic E. coli

<400> 80

Met Pro Val Asp Leu Thr Pro Tyr Ile Leu Pro Gly Val Ser Phe Leu  
1 5 10 15

Ser Asp Ile Pro Gln Glu Thr Leu Ser Glu Ile Arg Asn Gln Thr Ile  
20 25 30

Arg Gly Glu Ala Gln Ile Arg Leu Gly Glu Leu Met Val Ser Ile Arg  
35 40 45

Pro Met Gln Val Asn Gly Tyr Phe Met Gly Ser Leu Asn Gln Asp Gly  
50 55 60

Leu Ser Asn Asp Asn Ile Gln Ile Gly Leu Gln Tyr Ile Glu His Ile  
65 70 75 80

Glu Arg Thr Leu Asn His Gly Ser Leu Thr Ser Arg Glu Val Thr Val  
85 90 95

Leu Arg Glu Ile Glu Met Leu Glu Asn Met Asp Leu Leu Ser Asn Tyr  
 100 105 110

Gln Leu Glu Glu Leu Leu Asp Lys Ile Glu Val Cys Ala Phe Asn Val  
 115 120 125

Glu His Ala Gln Leu Gln Val Pro Glu Ser Leu Arg Thr Cys Pro Val  
 130 135 140

Thr Leu Cys Glu Pro Glu Asp Gly Val Phe Met Arg Asn Ser Met Asn  
 145 150 155 160

Ser Asn Val Cys Met Leu Tyr Asp Lys Met Ala Leu Ile His Leu Val  
 165 170 175

Lys Thr Arg Ala Ala His Pro Leu Ser Arg Glu Ser Ile Ala Val Ser  
 180 185 190

Met Ile Val Gly Arg Asp Asn Cys Ala Phe Asp Pro Asp Arg Gly Asn  
 195 200 205

Phe Val Leu Lys Asn  
 210

<210> 81  
 <211> 209  
 <212> PRT  
 <213> Enterohemorrhagic E. coli

<400> 81

Met Pro Val Thr Thr Leu Ser Ile Pro Ser Ile Ser Gln Leu Ser Pro  
 1 5 10 15

Ala Gly Val Gln Ser Leu Gln Asp Ala Ala Arg Leu Glu Ser Gly Ile  
 20 25 30

Arg Ile Ser Ile Gly Ser Gly Gln Tyr Ser Val His Tyr Val Gln Leu  
 35 40 45

Leu Asp Gly Phe Ser Val Glu Pro Val Arg Gly Gly Leu Leu Asp Arg  
 50 55 60

Leu Leu Gly Arg Glu His Arg Met Glu Arg Arg Ala Val Ala Leu Glu  
 65 70 75 80

Arg Gln Leu Asn Gly Gly Val Asp Phe Leu Ser Ser Val Asn Asn Tyr  
 85 90 95

Phe Gln Ser Val Met Ala Glu His Arg Glu Asn Lys Thr Ser Asn Lys  
 100 105 110

Ile Leu Met Glu Lys Ile Asn Ser Cys Leu Phe Arg Pro Asp Ser Asn  
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115

120

125

His Phe Ser Cys Pro Glu Ser Phe Leu Thr Cys Pro Ile Thr Leu Asp  
 130 135 140

Thr Pro Glu Thr Gly Val Phe Met Arg Asn Ser Arg Gly Ala Glu Ile  
 145 150 155 160

Cys Ser Leu Tyr Asp Lys Asp Ala Leu Val Gln Leu Val Glu Thr Gly  
 165 170 175

Gly Ala His Pro Leu Ser Arg Glu Pro Ile Thr Glu Ser Met Ile Met  
 180 185 190

Arg Lys Asp Glu Cys His Phe Asp Thr Lys Arg Glu Ala Phe Cys Cys  
 195 200 205

Lys

<210> 82

<211> 191

<212> PRT

<213> Enterohemorrhagic E. coli

<400> 82

Met Pro Leu Thr Ser Asp Ile Arg Ser His Ser Phe Asn Leu Gly Val  
 1 5 10 15

Glu Val Val Arg Ala Arg Ile Val Ala Asn Gly Arg Gly Asp Ile Thr  
 20 25 30

Val Gly Gly Glu Thr Val Ser Ile Val Tyr Asp Ser Thr Asn Gly Arg  
 35 40 45

Phe Ser Ser Ser Gly Gly Asn Gly Gly Leu Leu Ser Glu Leu Leu Leu  
 50 55 60

Leu Gly Phe Asn Ser Gly Pro Arg Ala Leu Gly Glu Arg Met Leu Ser  
 65 70 75 80

Met Leu Ser Asp Ser Gly Glu Ala Gln Ser Gln Glu Ser Ile Gln Asn  
 85 90 95

Lys Ile Ser Gln Cys Lys Phe Ser Val Cys Pro Glu Arg Leu Gln Cys  
 100 105 110

Pro Leu Glu Ala Ile Gln Cys Pro Ile Thr Leu Glu Gln Pro Glu Lys  
 115 120 125

Gly Ile Phe Val Lys Asn Ser Asp Gly Ser Asp Val Cys Thr Leu Phe  
 130 135 140

SB-0008.ST25.txt

Asp Ala Ala Ala Phe Ser Arg Leu Val Gly Glu Gly Leu Pro His Pro  
145 150 155 160

Leu Thr Arg Glu Pro Ile Thr Ala Ser Ile Ile Val Lys His Glu Glu  
165 170 175

Cys Ile Tyr Asp Asp Thr Arg Gly Asn Phe Val Ile Lys Gly Asn  
180 185 190

<210> 83  
<211> 169  
<212> PRT  
<213> Enterohemorrhagic E. coli

<400> 83

Met Asp Ala Phe Ile Val Asp Pro Val Gln Gly Glu Leu Tyr Ser Gly  
1 5 10 15

Leu Ser His Thr Glu Leu Ala Asp Ile Ile Arg Leu Ala Asp Ser Val  
20 25 30

Glu Asn Gln Leu Asn Gly Gly Asn Ser Phe Leu Asp Val Phe Ser Thr  
35 40 45

Tyr Met Gly Gln Val Ile Ser Glu Phe Met His Ser Asn Asp Asn Arg  
50 55 60

Ile Glu Leu Leu Gln Arg Arg Leu His Ser Cys Ser Phe Leu Val Asn  
65 70 75 80

Ile Glu Glu Met Ser Tyr Ile Asp Glu Ala Leu Gln Cys Pro Ile Thr  
85 90 95

Leu Ala Ile Pro Gln Arg Gly Val Phe Leu Arg Asn Ala Glu Gly Ser  
100 105 110

Arg Val Cys Ser Leu Tyr Asp Glu Met Ala Leu Ser Arg Ile Ile Asn  
115 120 125

Asp Gly Met His His Pro Leu Ser Arg Glu Pro Ile Thr Leu Ser Met  
130 135 140

Leu Val Ala Arg Glu Gln Cys Glu Phe Asp Cys Ser Ile Gly His Phe  
145 150 155 160

Thr Val Arg Ser Asp Cys Tyr Ser Val  
165

<210> 84  
<211> 76  
<212> PRT

&lt;213&gt; Enterohemorrhagic E. coli

&lt;400&gt; 84

Met Ala Asp Arg Lys Gln His Arg Ala Ile Ala Glu Arg Arg His Ile  
1 5 10 15

Gln Thr Glu Ile Asn Arg Arg Leu Ser Arg Ala Ser Arg Val Ala Gln  
20 25 30

Ile Met His Ile Asn Met Leu His Glu Arg Ser His Ala Leu Ser Asn  
35 40 45

Ile Tyr Ser Ala Ser Val Phe Ser Tyr Leu Ala Asp Asp Leu His Glu  
50 55 60

Phe Gln Gln Leu Ile Gln Gln Gln Asn Lys Leu His  
65 70 75